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From the Editor's Desk

This issue we feature a major article on a group of long-petalled slipper orchids from Central and South America, members of the genus *Phragmipedium*. Guido Braem has written this, along with Sandy Ohlund, & Dr. Robert-Jan Quené. It features photographs of the species discussed as well as a host of historical information. The first two authors have also collaborated in the publication of the latest book on the Asiatic slipper orchids, simply titled *Paphiopedilum*.

Eric Christenson is a highly respected taxonomist from Florida, USA, and we welcome his contributions to the Australian Orchid Review. In this issue Eric presents a taxonomic and photographic revision of the genus *Barkeria*, a group related to *Epidendrum*. There is also a checklist of the species.

There are also a number of miscellaneous interesting articles covering topics such as fertilising, rare orchids, distinctions between species and hybrids, conservation and fallout from a number of cases where individuals have been caught smuggling rare and endangered orchid species. As well as notes about upcoming events and orchid conferences.

I have just returned from my second trip to the United States of America this year. I was honoured to have been asked to be the headlining lecturer at "Speakers Day" held in New York at the end of October. This was organised by the "Joint Presidents Council", involving numerous orchid societies in the New York area. It is an all-day, annual event, with three overseas speakers and one local. The paper I presented was "Australian Orchids, Now and into the Future". The venue housed a number of orchid vendors, including the speakers, with the commissions from plants sales, plus the admission charges for participants (which included an impressive buffet lunch) helping to fund the event. There were about 250 people in attendance on the day, and it was wonderful to catch up with people I had met on previous visits to the Big Apple in 1997 and 1999, and also make new friends.

Following this I headed to California, especially for the Open Weekend at the Santa Barbara Orchid Estate (SBOE), which was founded in 1957. Paul Gripp ("The Orchid Man") has played an important role at this nursery on and off for most of this time. The nursery is now owned by his adult children, daughter Alice and son Parry (who is also a bit of a rock star, remember the name Nerf Herder!) The SBOE specialise in orchids that can be grown out of doors, or under shadecloth, in southern California. This is actually a similar climate to many parts of coastal Australia, and it comes as no surprise that many of their plants would be familiar to Australian orchid growers. The orchids that they are finding most popular at present are pendulous cymbidiums, fragrant cymbidiums (especially species such as *Cymbidium tracyanum*), our own "Rock Orchid" *Dendrobium speciosum* and of course *Laelia anceps*, which the SBOE has one of the best collections of this Mexican species, and certainly the most American Orchid Society awards of cultivars from their stable. The Gripp's are wonderful people, and they, as well as the staff at the SBOE made me feel very welcome and ensured I had a memorable time in Santa Barbara.

Parry, Paul and Alice Gripp

Best wishes for the festive season.

David P. Banks
Editor, Australian Orchid Review
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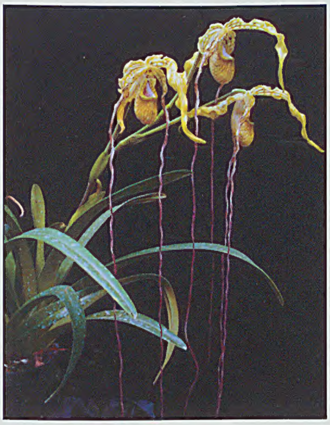

Phragmipedium caudatum "var. *sanderae"* – Photograph courtesy of Orchids Limited.
See feature on page 4.

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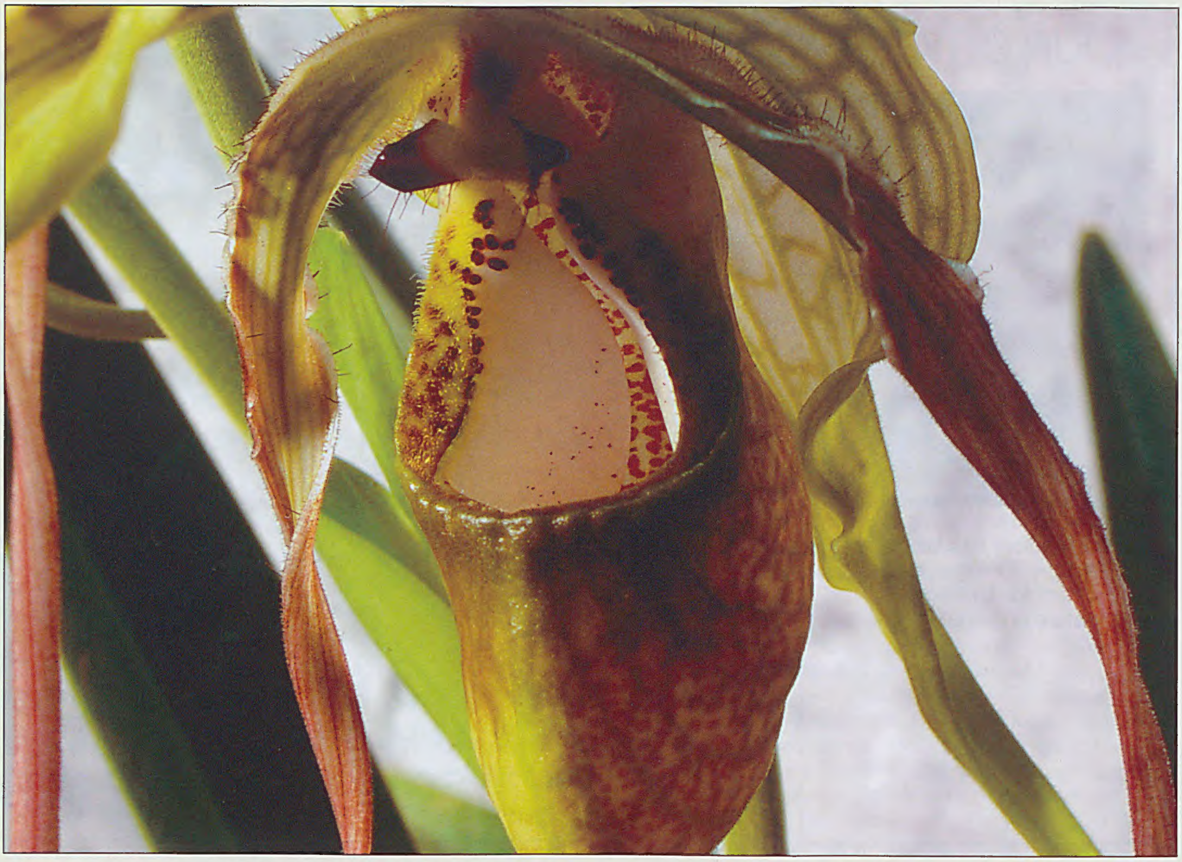


Phragmipedium caudatum – Photograph courtesy of Prem Subrahmanyam

Will The Real *warszewiczianum*

A clarification of the *Phragm* (*Phragmipedium* sect

Dr. Guido J. Braem[1], Sandy

Keywords

Orchidaceae, Cypripedioideae, Phragmipedium, P. caudatum, P. exstaminodium, P. humboldtii, P. lindenii, P. popowii, P. wallisii, P. warszewiczianum, Neotropics, Taxonomy, Systematics.

Abstract

The primary literature dealing with the plants now considered to form section *Phragmipedium* of the genus *Phragmipedium* is reviewed. It has become apparent that the names "*Phragmipedium wallisii*" and "*Phragmipedium warszewiczianum*" have been misapplied in horticultural literature, in the judging systems of various orchid societies and by the Orchid Hybrids Registrar of the Royal Horticultural Society (UK). The species belonging to this group are clarified and delineated. A new species, *Phragmipedium popowii*, is described.

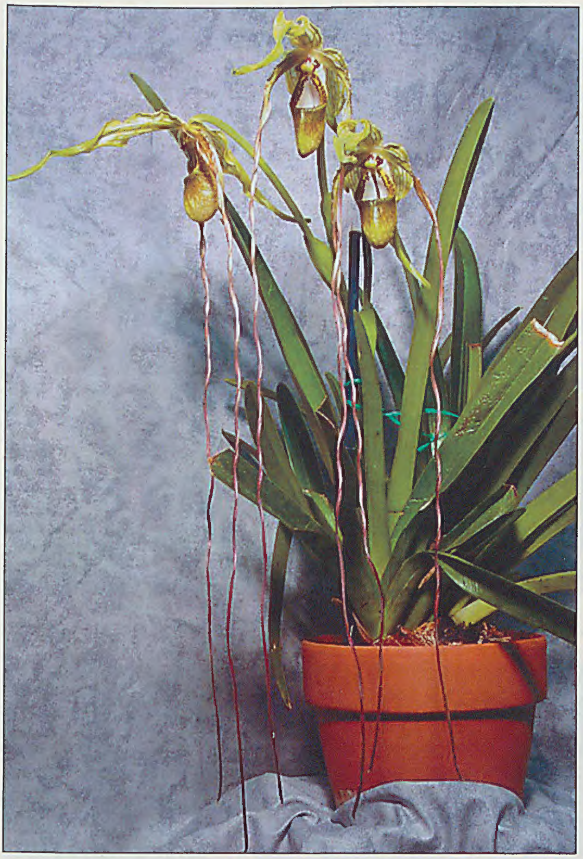
Introduction

The plant group surrounding what is now generally known as *Phragmipedium caudatum* is one of the most important within the genus, in the view of the taxonomist as well as that of the hybridist. First of all, *P. caudatum* is the type species of the genus. *Phragmipedium caudatum* and its close relatives are distinguished by their long and narrow petals. Especially because of this, these plants have been used repeatedly in the parentage of hybrids.

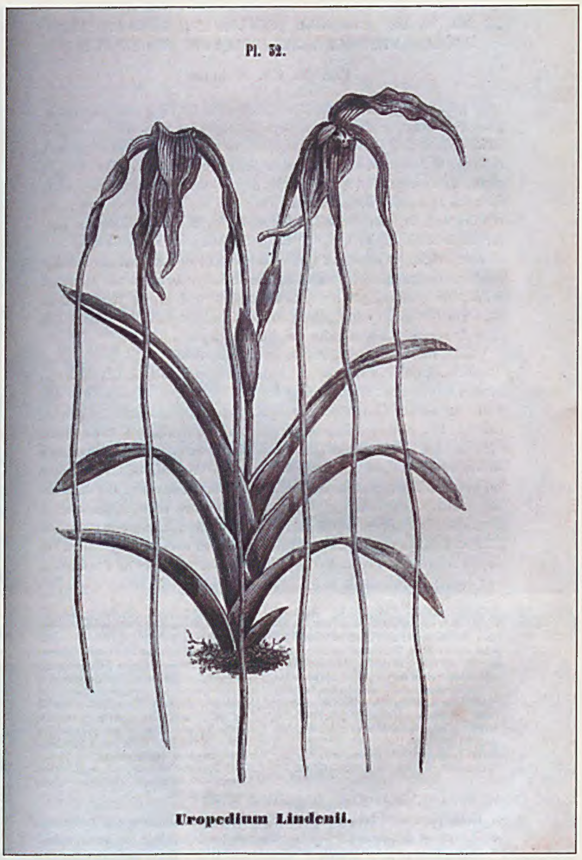
In this group, seven taxa have been described at the species level (Braem, Ohlund & Quené, 2004). (See table below.)

The proper identification of two of these entities (*P. lindenii* and *P. exstaminodium*)

Phragmipedium caudatum	as *Cypripedium caudatum* in 1840
Phragmipedium lindenii	as *Uropedium lindenii* in 1846
Phragmipedium warszewiczianum	as *Cypripedium warszewiczianum* in 1852
Phragmipedium wallisii	as *Selenipedium wallisii* in 1873/1874[4]
Phragmipedium exstaminodium	as is in 1984
Phragmipedium humboldtii	as is in 1998
Phragmipedium popowii	as is in 2004



Phragmipedium caudatum – Photograph courtesy of Prem Subrahmanyam


Pl. 32.
Uropedium Lindenii.

Phragmipedium lindenii – Photograph from *La Belgique horticole* (1854)

Phragmipedium Please Stand Up?

ipedium caudatum complex ion *Phragmipedium*).

Ohlund[2], & Dr. Robert-Jan Quené[3]

has never been a problem. After all, both are missing a major part of the "normal" slipper orchid flower: *P. lindenii* has no pouch, and in the case of *P. exstaminodium*, as its name indicates, the search for a staminode is in vain.

In respect to the other taxa, our study has revealed that there has been great misunderstanding. The reasons for this are to be found in the inadequacy of the original publications of "*Cypripedium caudatum*" and "*Cypripedium warszewiczianum*" and the obvious lack of comprehension of some botanists in respect to the original German literature.

The result has been confusion, or should one simply say "chaos."

We have set out to clarify the situation. And the only way to do this properly is to go back to the roots, meaning the original descriptions and, if any, the accompanying illustrations.

Discussion

Phragmipedium caudatum

Phragmipedium caudatum was originally described by John Lindley (1840). Lindley writes: "I have only seen one mutilated flower of this extraordinary plant, obtained at Lima, from an herbarium of Ruiz & Pavón and sent by Mathews to Sir W. Hooker. The petals are nearly 8 inches long, while the sepals are about 5 inches long." In view of the material available to Lindley, it does not surprise that his Latin diagnosis reveals but little more data[5]. In that part of his publication Lindley reveals that the sepals are oblong-lanceolate, tapering to a point, and covered with hairs on the outside. The petals are lanceolate, and like the sepals, covered with hairs on the outside. They extend into very long tails. The margins around the orifice of the lip are hirsute.

At the time of Lindley's description, very few slipper orchids were known. Because of the fact that *Phrag. caudatum* evidently was so different from anything Lindley had encountered before, his

---

[1] California Academy of Sciences, California, USA & University of Maryland, University College, Germany

[2] Associate Professor, Holy Cross College, Notre Dame, Indiana, USA

[3] Orchids Limited, Plymouth, Minnesota, USA

[4] The publication date is dubious. According to *Taxonomic Literature* Ed. 2. (Stafleu & Cowan, 1983) the text would have been published on March 6th, 1873 whereas the illustration would have been published on October 10th, 1874.

Phragmipedium exstaminodium – Photographs courtesy of Eric Hágsater

Phragmipedium exstaminodium

description was, under the circumstances, quite adequate. This, however, is no longer the case. Several other taxa, obviously belonging to the same group of neotropical slippers, have since been described (see table page 4). Furthermore, together with the description of his "*Cypripedium warszewiczianum*," Reichenbach fil. was to confuse taxonomists through mentioning "*Cypripedium Humboldti*" (see below).

Lindley's publication of *P. caudatum* (Lindley, 1840) does not comprise any illustrations, nor does it reveal any details about the colour of the flower. In any case, they would have been rather questionable as the Lindley specimen was nothing but a damaged dried bloom[6]. We must therefore turn to other publications, possibly close to Lindley's in time. (Nevertheless. it must be noted that secondary literature, no matter how close to the original description, remains problematic.)

The one that comes to mind is Hooker's treatment of the plant in his *Icones plantarum* (Hooker, 1844). Hooker's work is based on material collected by William Lobb[7] in the Andes east of Lima when traveling on the account of Veitch of Exeter. Unfortunately, only his dried material made it back to England; the living plants perished whilst Lobb was "confined with a malignant fever" in Jamaica. Thus, Hooker's description, just

Phragmipedium lindenii in situ – Photograph G. J. Braem

---

[5] *C. sepalis oblongolanceolatis acuminatis extus pubescentibus, petalis lanceolatis extus pubescentibus in acumen longissimum cauliforme productis, labelli ore hirsuto.*

[6] As Ruiz and Pavón terminated their famous expedition in 1788, the blooms were dried about half a century (or more) before they were sent to Britain.

as the Lindley work, is based on dried material only. At least the Lobb specimen had three intact flowers and "a trace of a fourth," and although just as little data about the flower colour may be reliably deduced from Hooker's treatment when compared to that of Lindley, some further details about the flowers are revealed by the botanical drawing (tab. 658-659, see page 19, *AOR* Oct/Nov 2004) which is the earliest illustration of the species that we have found.

The next pertinent description we can turn to was rendered by John Lindley in *Paxton's Flower Garden* (Lindley, 1850). The corresponding botanical drawing (tab. 9, see page 21, *AOR* Oct/Nov 2004) is (as far as we know) the earliest coloured illustration of a plant of the *P. caudatum* group. It shows a few differences from the drawing rendered in Hooker's *Icones plantarum*. These differences, as we will later see, become important when differentiating *P. caudatum* from *P. warszewiczianum*. One should, however, not forget that the Hooker drawing was made from dried material. The illustration in *Paxton's Flower Garden* was prepared after a live specimen that flowered in the collection of Mrs. Lawrence in Ealing Park.

Lindley, in his account in *Paxton's Flower Garden,* relates that Hartweg found the species in "marshy places near the hamlet of Nanegal, in the province of Quito" and that the collectors of Veitch (Exeter) and Linden (at that time Brussels) also laid hands on it, and shipped specimens to their employers. Apparently, Linden could claim credit for introducing the plant into the European collections. Obviously, Lindley, in 1850, still knew very little about the nature of the plant(s) involved, and assumed that the differences in flower colour between the Lawrence specimen and the indications given in the "drawings brought home by Mr. Warczewitz *[sic]*" were due to the different growing conditions in Europe as compared to those in the native habitats. Lindley obviously did not think that more than one entity could be involved.

The first detailed differentiation was to follow about four years later when the younger Reichenbach published the plants brought home by von Warszewicz. In the issue of the *Botanische Zeitung* for 15 October 1852, Reichenbach clarified that he considered the complex to be made up of two different species. Reichenbach clearly linked *"caudatum"* to Lindley's original description (Lindley 1840) and Hooker's plant as described in the *Icones plantarum* (Hooker 1844) as well as to von Warszewicz's concept of *"Cypripedium Humboldti"*. This plant, now referred to as *Phragmipedium caudatum* (Lindley) Rolfe, was defined by Reichenbach fil. as follows (translated from the German original [Italics as in the original]):

Cypr. caudatum Lindl. Orch. 5. 31.: dorsal sepal broadly oblong, acute. Synsepal similar but broader. Petals very long, linear from a broader base. Pouch oblong, inflated, the margin around the aperture with short hairs, causing a velvet-like surface. Staminode three-lobed Hook. Ic.. loc. cit. *C. Humboldti* v. Wszwcz.[8]. "Flowers deep yellow, veined red. Lip spotted purple." [The quotation marks are Reichenbach's. He apparently quotes from von Warszewicz's notes.]

In the forests of the Peruvian Andes. Ruiz! (Herb. Berol.! [Berlin Herbarium, lost by act of war]) Chiriquí Mountains. von Warszewicz!

"Cypripedium Humboldti" was thus clearly set within the synonymy of the earlier published *Cypripedium caudatum* by Reichenbach fil. himself. To assume that Reichenbach would describe a species and reduce it to synonymy a few lines later is ludicrous. This is confirmed by Reichenbach's treatment of the genus *Selenipedium* in the first volume of his *Xenia Orchidacea* (Reichenbach fil., 1854). There, on page 3, he lists *"C. Humboldti* Wzw" as synonym to *Selenipedium caudatum*. Interesting also is that he writes *"C. Humboldti* Wzw", and not *"C. Humboldti* Rchb.f." or *"C. Humboldti* Wzw ex (and/or) Rchb.f.", thus indicating that he did not describe that entity in 1852.

The description of the Mesoamerican plants of *"Cypripedium caudatum* sensu lato" as an autonomous entity under the name of *Phragmipedium humboldtii* by Atwood & Dressler (1998) is therefore invalid, and the name is blocked at the species level. Two of us have dealt with this problem in detail on another occasion (Braem & Ohlund, 2004). As we do consider the Mesoamerican plants in question to be an autonomous species, we described it as *Phragmipedium popowii* (Braem, Ohlund & Quené, 2004).

Phragmipedium caudatum (Lindley) Rolfe

The Orchid Review, 4: 327-334 [332] (1896).

Basionym

Cypripedium caudatum Lindley
The Genera and Species of Orchidaceous Plants, 7: 531 (1840).

Type

PERU. Pillao, Ruiz & Pavón, s.n.

Synonyms

Selenipedium caudatum (Lindley) Reichenbach fil.
Xenia Orchidacea, 1: 3 ([1. April] 1854)[9].
Paphiopedilum caudatum (Lindley) Pfitzer
in Pringsheim, *Jahrbücher für wissenschaftliche Botanik,* 19: 155-165 [164] (1888)[10].
Phragmopedilum caudatum (Lindley) Pfitzer
in Engler, *Das Pflanzenreich,* 4(50), Heft 12: 1-132 [51-53] (1903)[11].

Etymology

Named *caudatum* in reference to the long petals.

Description

Herbaceous humus epiphyte up to 60 cm tall, roots simple, from a short rhizome. Stem short with imbricate leaves, conduplicate, with a notched apex, up to 60 cm long and 4.5 cm wide, the basal leaves longer and inner leaves becoming shorter, bright green. Scape terminal, pubescent, to 60 cm, with 2 to 4, sometimes 5, large showy flowers open simultaneously. Floral bracts 4 to 6 cm long and 3 cm wide, ovate or obovate, smaller in ascending flowers, sometimes with a terminal bract. Pedicel and ovary 12 to 15 cm long, pubescent. Dorsal sepal 11 to 19 cm long and 2.5 to 3.8 wide, lanceolate, apex acuminate, margins undulate, white to cream with green to purplish reticulations, curving forward over lip. Synsepal ovate-acute, 14 to 16 cm long and 5 to 7.8 cm wide, similar to dorsal sepal in colour and reticulations. Petals long, pendent, slightly twisted, undulate and ciliate at base, pubescent distally, up to 72 cm long and 1.2 to 1.9 cm wide, cream with green veins becoming reddish brown to mahogany distally. Lip 2.5 to 3.3 cm long and 5 to 6.4 cm wide, saccate with a smooth rim and a velvety aperture edge, not flared, green flushed purple and veined olive green, margins

---

[7] Lobb, William (18091863) British plant collector and explorer, collected mainly in the Americas.

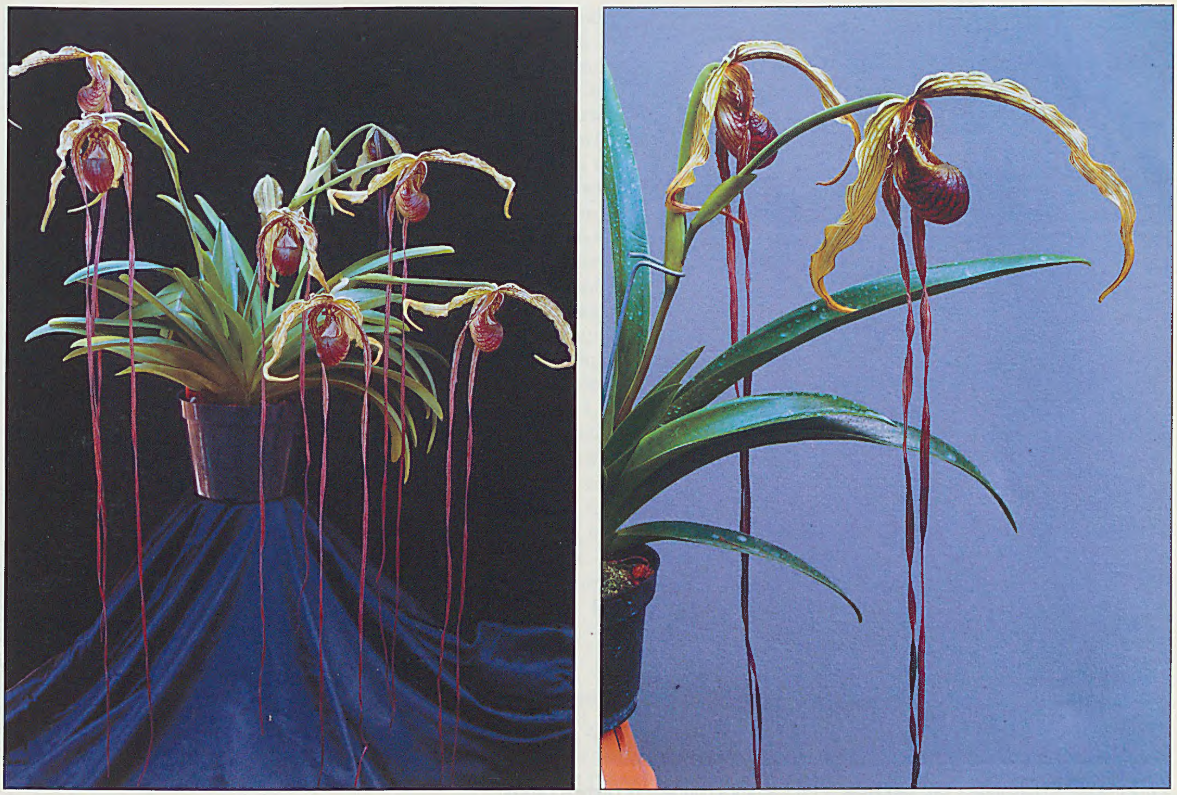
[8] This is not to be read as *C. Humboldti* variety Wszwcz. It is the reference to the plant designated as *"C. Humboldti"* by von Warszewicz.

[9] In some articles, one may find this entity as described by Reichenbach fil. in *Bonplandia*, 2(9):116 (Reichenbach fil., 1854). This is an error as the *Bonplandia* issue was published on May 1st, 1854 and thus postdates the publication in the *Xenia Orchidacea*.

[10] McCook (1989) credits this to Pfitzer in "Engler, *Die Natürlichen Pflanzenfamilien,* Orch. 2:84 (Pfitzer, 1888b)." It may be assumed that she refers to "Engler, *Die Natürlichen Pflanzenfamilien*, Division II, volume 6, fascicle 22 page 84 (1888)." This was published in November of 1888. We doubt that this predates Pfitzer's publication in Pringsheim's *Jahrbücher für wissenschaftliche Botanik*. (Pfitzer, 1888a).

[11] McCook (1989) credits this to Pfitzer in Engler, *Botanische Jahrbücher,* 25: 518 (Pfitzer, 1898). This is a factual error. In the original German text, Pfitzer writes: "Zahlreicher sind die Arten von *Paphiopedilum*, die ich .... *caudatum* (Lindl.)". There is no mention of "*Phragmopedilum*."

Reichenbach's Original	**Translation**
[our italics and comments in square brackets]	[our comments in square brackets]
Selenipedium Wallisii Rchb. fil. Affine *Selenipedio caudata* Rchb. fil. et Warscewiczii Rchb. fil. (caudato roseo Hort.) tepalis calvis. *Cypripedium Wallisii* Rchb. fil. in litt. olim.	*Selenipedium Wallisii* Rchb. fil. Resembles *Selenipedium caudatum* Rchb. fil. and *Selenipedium Warscewiczii* [sic.] Rchb. fil. (*caudatum roseum* Hort.) and has glabrous tepals. *Cypripedium Wallisii* Rchb. fil. in earlier literature [could hitherto not be found].
“Folia ligulata acuta coriacea. Pedunculus triusque quinqueflorus. Bracteae oblongae acutiusculae ovariis elongatis multoties breviores. Sepala extus velutina, intus calva, paucinervia nervillis transversis subnullis, oblonga acutiuscula, lateribus hinc undulata. Tepala a basi ligulata lancea longe caudata, ima bai paulo barbata per caudas velutina, a pitis illis Selenipedii caudati ac Warscewiczii rigidis erectus marginalibus libera. Labellum bene saccatum, superne clausum, bene obtusum, margine abrupto interne medio apiculato, limbo continuante velutino subobsoleto. Staminodium semilunatum cum apiculo in sinu. “Sepalum sommum viride, inferius albidum venis veridibus. Tepala albida venis viridibus, caulis brunneis. Labellum albidum maculis brunneis, limbo interno eboraceoalbido maculis atropurpureis margine flavo. Staminodii aures atropurpureae.”	[The Latin text corresponds exactly to the German description. We therefore explain Reichenbach's terminology in the following translation of that German text and refrain from including a redundant translation of the Latin.]
[The Latin text is put in quotation marks. This again indicates that Reichenbach copied it from an earlier publication. This publication, however, could hitherto not be found.]	
Diese Pflanze entdeckte Herr Wallis in Ecuador, wo Derselbe auch das schöne *Selenipedium Czerwiakowianum* wiederfand, das ich nächstes abbilden werde. Trotz des augenscheinlich großen Unterschieds von den beiden oben genannten Arten konnte ich um so weniger einen Charakter auffinden, als ich durch mehrere Erfahrungen sehr vorsichtig bei Anwendung des Staminodiums geworden bin. Endlich fiel mir auf, dass dieser Art jene Borsten absolut fehlen, welche die zwei Verwandten auf dem Rande der Tepalen führen.	This plant was discovered by Mr. Wallis in Ecuador where he also rediscovered the beautiful *Selenipedium Czerwiakowianum* of which I will soon publish an illustration. In spite of the obviously large differences between *Selenipedium wallisii* and the two species which I referred to above [here Reichenbach refers to *“Sel. caudatum”* and *“Sel. Warscewiczii [sic]”* mentioned in the Latin part of his text] I could not find a specific differentiating character, especially as I have become very cautious in respect to the usage of the staminode for this purpose. At last, my attention was drawn to the fact that this species *[Sel. wallisii]* completely lacks the bristles that its two relatives carry on the margins of the tepals.
Bei dieser Gelegenheit sei mit erwähnt, dass ich so glücklich war, endlich einen ausgezeichneten Unterschied zwischen *Selenipedium caudatum* und *Warscewiczii* aufzufinden. Letzteres hat am Vorderrande der Lippe zahlreiche kleine Gruben, welche dem ersteren gänzlich fehlen. Alle Versuche, dem Staminodium einen Charakter abzugewinnen, schlugen fehl, je mehr Exemplare ich studierte.	At this occasion, it may be noted that I have finally succeeded in finding an excellent characteristic by which I can differentiate between *Selenipedium caudatum* and *Warscewiczii [sic]*. The latter has many small indentations at the front of the lip. Such indentations are absolutely lacking in the former species. All attempts to deduce a character from the staminode remained without success, the more specimens I studied.
Ferner will ich noch hier die Notiz einstreuen, dass Herr Rözl im östlichen Neu-Granada *Uropedium Lindeni* ebenso auf Bäumen antraf, wie Herr Wallis in Ecuador.	Furthermore, I wish to note here, that *Uropedium lindenii* was found growing on trees by Mr. Rözl in eastern New-Granada, as did Mr. Wallis in Ecuador.
Selenipedium Wallisii hat zungige spitze lederartige Blätter. Der Blüthenstiel trägt drei bis fünf Blüthen. Die Deckblätter sind länglich spitzlich, vielmals kürzer als die langen Fruchtknoten. Dieses nach Herrn Wallis' Skizzen, die Derselbe mehrfach und mit Vorliebe gemacht hat. Sepalen aussen sammtig, innen kahl, wenignervig, mit wenigen Quernerven, länglichspitz, an den Seiten hier und da wellenrandig. Tepalen von breit zungig lanzettlichem Grunde lang bandförmig geschwänzt, am Grunde innen etwas bärtig, über die Schwanzfortsätzen hin sammtig, frei von jenen aufrechten steifen Haaren, die bei *Selenipedium caudatum* und *Warscewiczii* vorkommen. Lippe gut sackig, obenhin geschlossen, stumpf, am Vorderrande mit einem Spitzchen, auf nach oben laufender Saumkante sehr schwachsammtig. Fehlgeschlagenes Staubgefäss halbmondförmig mit Spitzchen in Vorderbucht. Oberes Sepalum grün, unteres weisslich mit grünen Adern. Tepalen weisslich mit grünen Adern. Schwänze braun. Lippe weisslich mit braunen Fleckchen, Innensaum milchweiss mit braunen Flecken um die gelbe Saumkante. Aussenspitzen des Staminodiums braun.	*Selenipedium wallisii* has tongue-shaped, pointed, leathery leaves. The inflorescence bears three to five flowers. The bracts are elongate, pointed, many times shorter than the long ovaries. This I deduce from Mr. Wallis's sketches. The sepals are velutinous on the outside, glabrous on the inside. They have but few veins and show little cross-veining. They are elongate, acute, the margins at some places undulate. The tepals [here Reichenbach obviously refers to the petals] are tapered to a long narrow tail from a broad tongue-shaped lanceolate base which is somewhat covered with stiff hairs on the inside. The long tapered tail-like endings are velutinous over their entire length but lack the erect stiff hairs that occur in *Selenipedium caudatum* and *Warscewiczii*. The lip is distinctly saccate, closed above [meaning that the aperture is toward the front of the pouch], blunt, the front margin of the aperture with a little tip, the margin toward the top [the base of the pouch] very slightly velutinous. The abortive anther [generally referred to as “staminode” or “staminodal shield”] is semilunate with a small tip in the front bay. Upper sepal [dorsal] green, lower one [synsepal] whitish with green veins. Tepals [petals] whitish with green veins. Tails brown. Lip whitish with brown spots. Inside margin [inside of the aperture] milky white with brown spots around the yellow edge. Outside tips of the staminode brown.
Tafel 181. Eine Blüthe mit zugehörigen Axentheilen.	Table 181. A flower with the corresponding parts of inflorescence [pedicel, flower bract].



Phragmipedium popowii – Photographs courtesy of Orchids Limited

involute, inside fold ivory with purple spots. Staminode three-lobed, yellow centrally, purple distally. with a few stiff purple hairs at margins. Plants from South America (Peru and Bolivia).

Chromosome count: 2n = 28 (Karasawa, 1980)

Phragmipedium warszewiczianum and *Phragmipedium wallisii*

Reichenbach clarified that the plant depicted in *Paxton's Flower Garden,* t. 9, was not identical with the plant sent by von Warszewicz because of the distinct difference in the morphology of the staminode (two-lobed versus three-lobed). [Here Reichenbach obviously still believed he could differentiate between the taxa by means of staminodium morphology, (but see his "*wallisii*-text" page 8)]. Therefore, this plant was not identical with Lindley's original *Cypripedium caudatum* and needed to be redescribed. This is Reichenbach's second species: *C.[ypripedium] warszewiczianum*, now referred to as *Phragmipedium warszewiczianum* (Reichenbach fil.) Garay, and defined as follows (translated from the German original):

Cypr. warszewiczianum: dorsal sepal oblong, acute-acuminate, synsepal similar but longer with a larger base, petals very long and linear from a broader base; pouch oblong, the margins near the base saw-edged, staminode transversely two-lobed, the tips beset with bristles. *Cyp. caudatum* Lindl. Fl. Gard, I. 9. p. 31. This probably is the *C. caudatum* that grows in marshy places.

Thus we can link both *Phragmipedium caudatum* and *P. warszewiczianum* each to very distinct and absolute sources. The plants answering to the Lindley description of 1840 and the Hooker treatment of 1844 are to be referred to as *Phragmipedium caudatum* (Lindley) Rolfe, and all those plants corresponding to the illustration in the Lindley treatment of 1850 *(Paxton's Flower Garden)* are to be referred to as *P. warszewiczianum* (Reichenbach fil.) Garay. For the former entity we have no indication of flower colour and only a black and white drawing prepared after a dried specimen. For the latter, however, we have a distinct and coloured painting made on the basis of a live plant.

The next entity for which we need a positive identification is *Phragmipedium wallisii* (Reichenbach fil.) Pfitzer.

The plant was described (as *Selenipedium wallisii*) by the younger Reichenbach in the second volume of his *Xenia Orchidacea* (Reichenbach fil., 1873/1874). The description, as well as the Latin diagnosis, is, in contrast to Reichenbach's usual descriptions, very explicit and reveals interesting information, not only in respect to *P. wallisii*. The original text is shown on page 8 (with our translation from the German original):

Thus, for *P. wallisii*, we have a detailed illustration and a fairly explicit description which leaves no doubt that the plant is identical to Reichenbach's *warszewicianum* of 1852, and thus must be reduced to a synonym of that entity.

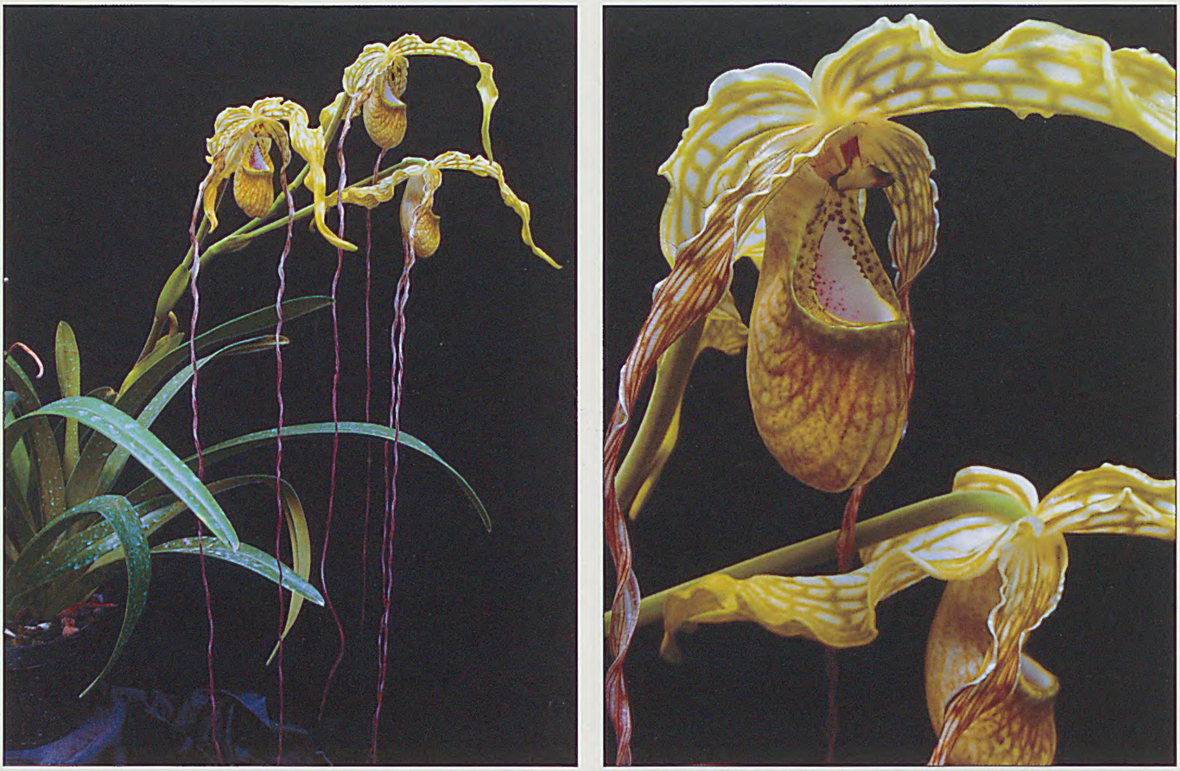
Interestingly enough, in 1852 Reichenbach fil. used staminode morphology to differentiate between *P. caudatum* and *P. warszewiczianum*. On the other hand, in his 1873/1874 publication, he notes that he "could not find a specific differentiating character," and that he has especially "become very cautious in respect to the usage of the staminode for this purpose." Indeed, the staminode morphology is rather variable within any given entity and therefore it can hardly be used as a taxonomic differentiation marker at the species level.

Phragmipedium warszewiczianum (Reichenbach fil.) Garay

The Orchid Digest, 43(4): 133-148 [140] (1979)

Basionym

Cypripedium warszewiczianum
Reichenbach fil.
Botanische Zeitung, 10(40): 689-698 [692] (1852).



Phragmipedium caudatum "var. *sanderae*" – Photographs courtesy of Orchids Limited

Type

PERU (?) Linden, s.n. Holotype: Illustration in Lindley & Paxton, *Paxton's Flower Garden,* 1st. Edition, 1, tab. 9 (1850)

Synonyms

Cypripedium caudatum var. *wallisii* (Reichenbach fil.) Kent[12]
in Veitch, *A Manual of Orchidaceous Plants*, 4: 61 (1889)
Cypripedium caudatum var. *warscewiczianum [sic]* (Reichenbach fil.) Kent
in Veitch, *A Manual of Orchidaceous Plants*, 4: 61 (1889)
Cypripedium wallisii (Reichenbach fil.) B.S. Williams
Orchid Growers Manual: 261 (1885)
Selenipedium caudatum var *wallisii* (Reichenbach fil.) Pucci
Les Cypripedium: 60 (1891)
Selenipedium caudatum var *warscewiczianum [sic]* (Reichenbach fil.) Pucci
Les Cypripedium: 60 (1891)
Selenipedium wallisii Reichenbach fil.
Xenia Orchidaceae, 2: 189-190, t. 181 (1873/1874).
Selenipedium warscewiczianum [sic] Reichenbach fil.
Xenia Orchidaceae, 1: 3, (1854).
Paphiopedilum caudatum var. *wallisii* (Reichenbach fil.) Stein
Stein's Orchideenbuch: 460 (1892)
Paphiopedilum caudatum var. *warscewiczii [sic]* (Reichenbach fil.) Stein
Stein's Orchideenbuch: 461 (1892)
Paphiopedilum wallisii (Reichenbach fil.) Pfitzer
in Engler, *Botanische Jahrbücher,* 19: 42 (1894).
Phragmopedilum caudatum var. *wallisii* (Reichenbach fil.) Pfitzer
in Engler, *Das Pflanzenreich,* 4(50), Heft 12: 1-132 [53] (1903).
Phragmopedilum caudatum var. *warscewiczianum [sic]* (Reichenbach fil.) Pfitzer
in Engler, *Das Pflanzenreich,* 4(50), Heft 12: 1-132 [53] (1903).
Phragmopedilum caudatum var. *wallisii* (Reichenbach fil.) Schlechter
in Fedde, *Repertorium Beihefte,* 8: 111 (1921).
Phragmopedilum caudatum var. *warzewiczianum* (Reichenbach fil.) Schlechter
in Fedde, *Repertorium Beihefte,* 17: 9 (1922).
Phragmipedium wallisii (Reichenbach fil.) Garay
Flora of Ecuador, *Orchids*. No. 9: 24 (1979).
Phragmipedium wallisii hort. and awards not *Phragmipedium warzewiczianum* hort. and awards = *P. popowii* (see below)

Etymology

Named *warszewiczianum* in honour of Joseph Ritter von Rawicz Warszewicz (1812-1866), gardener and plant collector, friend of Reichenbach fil.

Description

Herbaceous epiphyte often growing in moss. Stem short, leaf bases imbricate, completely enclosed, laid out as a fan. Leaves 5 to 8, lanceolate, the leaf tips acute, asymmetrically bilobed, leathery, up to 50 cm long and 3-3.5 cm wide, evenly green, margins lighter green to yellow. Scapes erect, to 50 cm, with 2 to 4, sometimes 5, flowers open simultaneously. Dorsal sepal lanceolate, apex acute, margins undulate, 10 to 12 cm long by 2 to 2.5 cm wide, curving forward over the lip. Synsepal broadly lanceolate, apex acuminate, margins undulate, up to 11 cm long by 3.5 cm wide. Both sepals creamy-white to creamy-green, veined green with very few cross-veins, not tessellated.

Petals long, ribbon like, up to 60 cm, even longer in some well-grown specimens. Petals up to 1.5 cm wide at the base, tapering to 3 to 4 mm, white with clear green mid-vein and 2 green veins marginally, the basal half pubescent with medium to long white hairs on inside, margins undulated, becoming twisted toward the tips, dark red pubescence becoming thicker distally, causing petal tips to appear darker in colour. Petal margins with a few maroon cilia. (According to Reichenbach fil. and others, *Phragmipedium warszewiczianum* has no cilia along the margins, but the flowers we observed did have some cilia along the margins at the base, although not as many as the other species in the *caudatum* complex.).

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[12] Although this work is generally credited to "Veitch" the text of this classic of orchid literature was written by and is to be credited to Adolphus Henry Kent (1828-1913).

Pouch slender, 2 to 2.5 cm wide by up to 5 cm long, the rim around the aperture flared, creamy white flushed yellow to chartreuse toward the rim, with green veins extending downward, rim chartreuse with chestnut to maroon spots, infolded side-lobes chalk white. Interior of pouch with maroon spots that show through to outside.

Staminode three-lobed, light green to chartreuse, the lateral lobes overlaid mahogany with a few mahogany cilia.

Chromosome count: 2n=28 [as *Phragmipedium wallisii*] (Karasawa, 1980)

Phragmipedium popowii Braem, Ohlund & Quené

Richardiana, 4(4): 171-196 (2004)
Type PANAMA, Chiriquí, Warszewicz 41 (W 15682).

Synonyms

"*Cypripedium Humboldti* Warszewicz" ex Reichenbach fil.
Botanische Zeitung, 10(40): 689-690 [691] (1852), *nomen nudum*.
Phragmipedium humboldtii (Warszewicz ex Reichenbach fil.) Atwood & Dressler *Selbyana*, 19(2): 245-248 [246] (1852), *nomen illegitimum*.
Phragmipedium warszewiczianum hort. and awards, non Garay 1979

Etymology

Named *popowii* in honour of Mr. Nebojscha Popow (1950-) of Fallersleben (Wolfsburg), Germany, who for more than thirty years has introduced many species to cultivation, and who, in spite of continuous and ongoing harassment by misguided bureaucrats, has remained one of the most ardent orchid conservationists of our times.

Description

Herbaceous humus epiphyte up to 35 cm tall, roots simple, from a short rhizome. Stem short with imbricate leaves, conduplicate, up to 35 cm long and 4.5 cm wide, the basal leaves longer and inner leaves becoming shorter, medium to dark green. Scape terminal, pubescent, 25 to 35 cm, with 2 to 4 large flowers open simultaneously, held well above the foliage. Floral bracts 4-6 cm long and 3 cm wide, ovate or obovate, smaller in ascending flowers, sometimes with a terminal bract above the top flower. Pedicel and ovary 10-14 cm long, pubescent. Dorsal sepal 16 to 19 cm long and 2.1 to 3.0 wide, lanceolate, margins undulate, cream with straw-yellow to green to reddish brown veins and reticulations, curving forward over lip. Synsepal ovate-acute, 14 to 16.6 cm long and 3.5 to 5.2 cm wide, similar to dorsal sepal in colour and reticulations. Petals long, pendent, twisted, undulate and ciliate at base, pubescent distally, up to 80 cm long and 1.9 cm wide, cream with dark reddish brown veins, becoming almost solid mahogany distally. Lip 5.8-6.8 cm long and 2.8-3.2 cm wide, inflated, rugose, margins involute, yellow to olive cilia on edge of aperture, olive green heavily veined and overlaid reddish brown, especially at the aperture, inside fold ivory with reddish-brown spots. Staminode trilobed, sparsely ciliate, green centrally, dark mahogany distally. Plants from Mesoamerica.

Phragmipedium exstaminodium

Phragmipedium exstaminodium was described by Castaño, Hágsater & Aguirre in *Orquídea* (Méx.) (1984). As we already pointed out in our introduction, the taxon is very easy to identify when in flower, as it produces blooms that lack the staminode. The plant, in all its other aspects, floral as well as vegetative, corresponds to those of *P. popowii*. (see above):

Phragmipedium exstaminodium Castaño, Hágsater & Aguirre

Orquídea (Méx.), 9: 191-197 (1984).

Type

MEXICO, Chiapas, Tziscao, 1,700 m, Leleu, s.n. (Holotype: AMO).

Synonym:

Phragmipedium humboldtii subsp. *exstaminodium* (Castaño, Hágsater & Aguirre) Atwood & Dressler, *Selbyana*, 19(2): 245-248 (1998), *nomen illegitimum*.

Etymology

Named *exstaminodium* referring to the missing staminode.

Description

From the original publication [comments in square brackets ours]

Plant epiphytic, up to 50 cm high. Roots simple, from a short rhizome, the stems producing a fan of leaves. Leaves imbricate, sublinear, up to 45 cm long, 4 cm wide, the basal leaves longest, upper leaves progressively shorter. Scape terminal, from the middle of the foliar fan, elliptical, pubescent, to ca. 50 cm high including the inflorescence, ca. 6mm in major diameter at the base. Flowers usually two, large, very showy. Flower bracts at the base of the ovaries, with a terminal bract above the top flower, subfoliose, smaller upwards, basal bract ca. 7.5 cm long, 3.5 cm wide, conduplicate, inner surface scabroushirsute, the tiny hairs of two cells, the terminal cell ellipsoidal, redbrown. Ovary pedicillate, ca. 12 cm long, abruptly flexed at the apex. Synsepal ovateacute, ca. 9 cm long, 3.5 cm wide near the base, 17-veined, white or cream, the veins brown, greenish ventrally towards the base, outer surface puberulent, inner surface glabrous. Dorsal sepal narrowly ovate-acute, ca. 11 cm long, 2.8 cm wide near the base, 11-veined, otherwise similar to the synsepal. Petals very long, pendent, strongly spiralled, very narrowly ovate and long acuminate, ca. 25-45 cm long; outer surface glabrous, inner surface finely pubescent, basal margins ciliate, the cilia multicellular, purple; outer surface thinly covered by short cilia, inner surface densely short ciliate; white, the veins greenish basally, becoming red-purple towards the apex, which is solid cherry-red, especially on the outer surface. Lip pouch-shaped, glabrous outside, pubescent inside, the margins involute, ca. 5 cm long; white, with cherry-colour in front and yellow-brown cilia in the mouth of the pouch, inner surface white with cherry spots. Androecium [the male part of the flower] without a staminode, bifurcate, anthers two, with 2 pollinia in each. Gynoecium [the female part of the flower] obovoid, puberulent. Capsule elongate, brown, pubescent, ca. 11.5 cm long, 5 mm in diameter. Seeds dark brown. See figure page 6.

Opinions about the correct taxonomic status of *Phragmipedium exstaminodium* diverge. Some consider it a subspecies or a variety of *P. caudatum*. It should, however, be considered at the same level as *P. lindenii*. As the latter entity is generally considered to be a good species, we see no reason to deny *P. exstaminodium* that same status.

Phragmipedium lindenii

This plant was originally published in the genus *Uropedium* by John Lindley (1846) on the basis of dried specimens of plants collected by Jean Jules Linden and that traveller's notes. Most probably because the pouch is missing in this plant, Lindley published it as a separate genus, naming it *Uropedium lindenii*. "*Uropedium*" means "long-tailed pouch" and "*lindenii*" is a dedication to the great explorer Linden who discovered the plant and who was to become the leading and most illustrious Belgian horticulturist.

The most interesting compact account about this species is to be found in the

Pescatorea (Linden, 1854). Below is part of the text with translation and comments by our senior author.

"This strange orchid flowered for the first time in 1850 in Europe in the collection of Mr. Pescatore. It was discovered by Mr. Linden in 1843 in the territory of the Chiguara Indians in Colombia, growing in small thickets of *Weinmannia, Eugenia,* and especially among high ferns *(Gleichenia)* that, at an altitude of about 1650 m [± 5,500 feet] above sea level, interrupt the green prairies of the savannah on a plateau of which the northern extremity dominates the vast and dark virgin forests that cover the immense area between Lake Maracaybo and the base of the Mérida Cordillera. Later, *Uropedium Lindenii* was also found in the province of Ocaña by Mr. Schlim, at various altitudes, and among different types of vegetation, sometimes covering the rocks, sometimes epiphytic, but generally as a terrestrial.[13]

Although the discovery of this remarkable *Cypripedium* dates back to 1843, the plant had, until 1849, been described in a very short note only, without discussing the particularities of its structure which have been so well described by Mr. A. Brongniart. The plant had been interpreted simply as some kind of *Cypripedium* with a flat and linear lip, a mistake that is easily understood if one considers the similarity of our *Uropedium* with *Cypripedium caudatum*. Indeed, this could become a reality if it were to be proven that *Uropedium Lindenii*, instead of being a normal and constant form, is a monstrous variety of some unknown *Cypripedium*.

No matter what amount of truth is to be accorded to that ingenious hypothesis, somewhat cautiously stated by Mr. Brongniart, and suggested by the strange metamorphoses that have been observed in certain proteiform orchids such as *Catasetum, Myanthus* and *Monachanthus*[14], it must be stated that, if it were not for the strange lip, *Uropedium Lindenii*, does in fact only differ from *Cypripedium caudatum* by the somewhat less intense colouration of its petals."

Uropedium lindenii was, for good reasons, transferred to the genus *Phragmipedium* by Dressler and N. Williams (1975). There is no doubt that *P. lindenii* belongs in the *caudatum* group. Whether this taxon is to be considered as a peloric form of *P. warszewiczianum* (*wallisii* hort and awards) or as a separate species, is really a matter of opinion. As the distribution of the taxon is quite large, and since (as far as we know) the plants grow independently from all other taxa of the group, we consider it best to regard it as a separate species (see figures pages 5 and 6).

Phragmipedium lindenii (Lindley) Dressler & N.H. Williams.

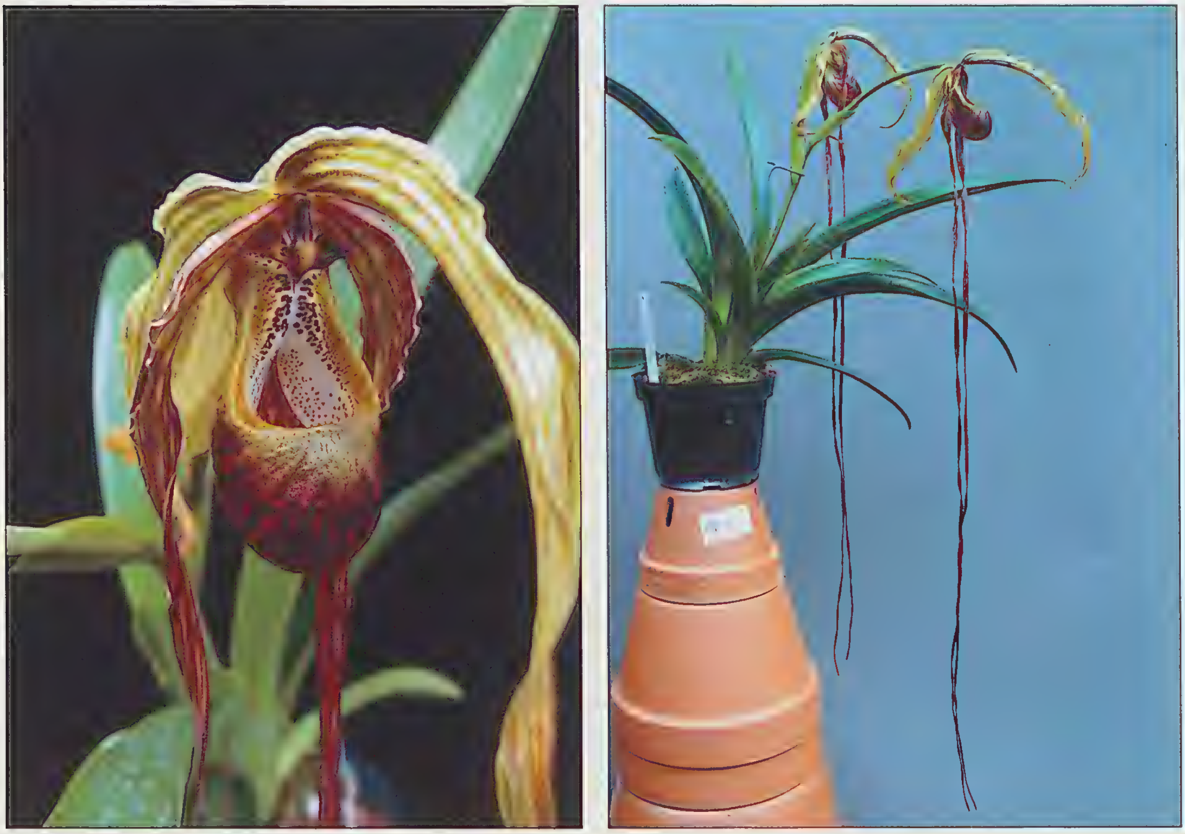
Taxon, 24(4): 691 (1975)

Basionym

Uropedium lindenii Lindley
Orchidaceae Lindenianae: 28 (1846).

Type

Venezuela. Savannah overlooking Lake Maracaibo, Linden. s.n.



Phragmipedium popowii – Photographs courtesy of Orchids Limited

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[13] The authors of the *Pescatorea* were in the erroneous belief that *Uropedium lindenii* (and all slipper orchids, at that time all considered to belong to the genus *Cypripedium* Linné) was a terrestrial plant. This assumption, unfortunately, can still be found in some modern-day monographs. It is a fact that all slipper orchids that are now considered to belong to the genera *Paphiopedilum* Pfitzer, *Phragmipedium* Rolfe (including *Uropedium* Lindley) and *Selenipedium* Reichenbach fil., are epiphytes, that sometimes root in the leafy humus on the forest floor or in the cracks and crevices of rocks, making their growing conditions susceptible to misinterpretation. See also comments about the epiphytic state of *P. lindenii* made by Reichenbach fil. in his description of "*Selenipedium wallisii*".

[14] *Myanthus* and *Monachanthus* are now known to be synonyms for *Catasetum*.

Synonyms

Cypripedium lindenii (Lindley) Van Houtte
Flore des Serres, 18: 155 (1870)
Cypripedium caudataum var. *lindenii* (Lindley) Kent
in Veitch, *A Manual of Orchidaceous Plants,* 4: 60 (1889)
Selenipedium caudatum var *lindenii* (Lindley) Pucci
Les Cypripedium: 56 (1891)
Selenipedium caudatum var. *uropedium* Rolfe
Lindenia, 7: 21 (1892)
Paphiopedilum caudatum var. *lindenii* (Lindley) Stein
Stein's Orchideenbuch: 460 (1892)
Phragmopedilum caudatum var. *lindenii* (Lindley) Pfitzer
in Engler, *Das Pflanzenreich,* 4(50), Heft 12: 1-132 [52] (1903).

Etymology

Named *lindenii* in honour of Jean Jules Linden (1817-1898), Belgian botanical explorer, horticulturist, for decades the doyen of Belgian horticulture.

Description

Herbaceous humus epiphyte often growing in moss or leafy debris on ground or in tree-forks. Rhizomes up to 1 cm long, roots striate. Stem short, leaf bases imbricate, completely enclosed, laid out as a fan. Leaves 5 to 8, lanceolate to lorate, the leaf tips acute, asymmetrically bilobed, leathery, up to 40 cm long and 2.5-4.5 cm wide, evenly green, margins lighter green to yellow.

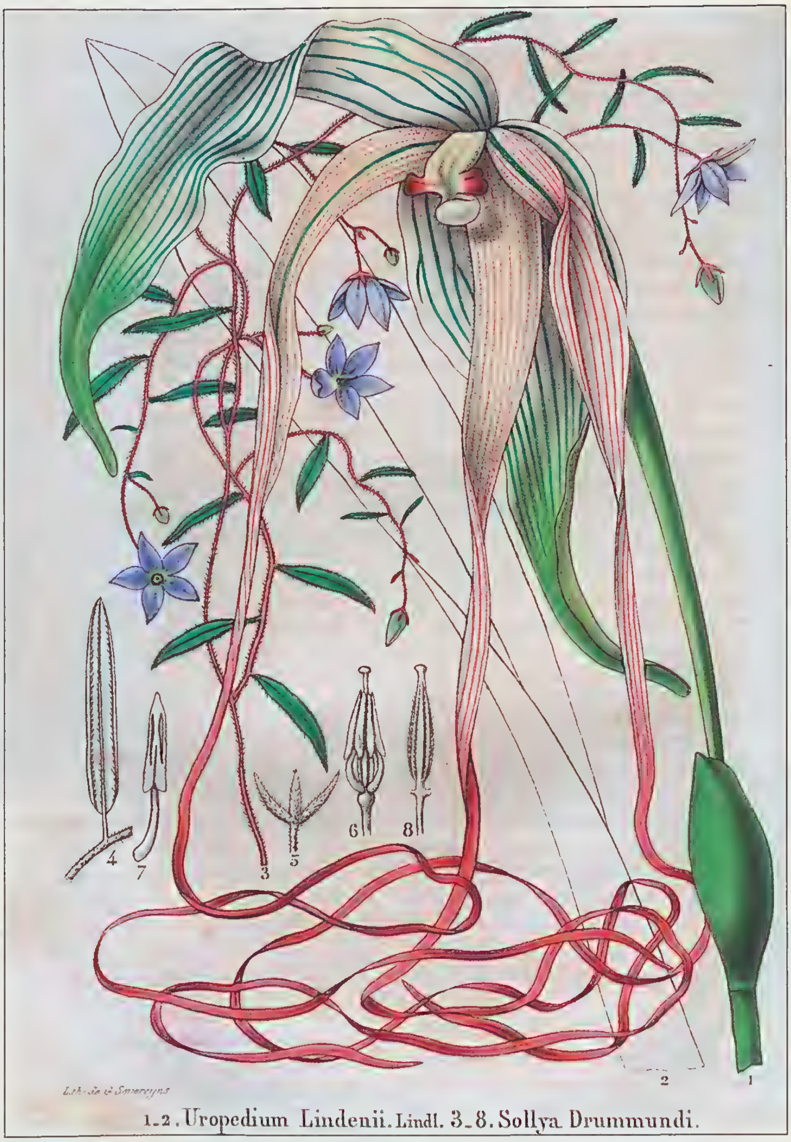
Scapes erect, up to about 50 cm, producing 2 to 4 or more flowers open simultaneously. Peduncle green, pilose. Floral bracts ovate-elliptic, to about 6.5 cm long by up to 4 cm wide, much shorter than the ovary. Flowers creamy green and buff in colour, becoming maroon apically. Dorsal sepal lanceolate, apex acute, margins undulate, 8-12 cm long and 1.5 -2.5 cm wide, curving forward over lip. Synsepal broadly lanceolate, apex acuminate, margins undulate, up to 11 cm long by 3.5 wide. Both sepals veined green with very few cross-veins, not tessellated.

Petals lanceolate, up to 42 cm long by 0.5 to 1.3 cm wide, the inside basally glabrous, the inside and the outside pilose-tomentose toward the acute apex, cream with lime green to bright green veins basally, shading to maroon distally.

Labellum ovate-lanceolate, not saccate, up to 42 cm long by 1.0-1.5 cm wide, otherwise identical with the lateral petals.

Staminode three-lobed, light green to chartreuse, the lateral lobes overlaid mahogany with a few mahogany cilia.

Chromosome count: 2n=28 (Karasawa, 1980).


4
7
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6
8
2
1
Lith. de G. Severeyns
1-2. Uropedium Lindenii. Lindl. 3-8. Sollya Drummundi.

Phragmipedium lindenii – Coloured Lithograph from *La Belgique horticole* (1854)

Conclusions

Phragmipedium section *Phragmipedium*, generally referred to as the "*caudatum* group," comprises five taxa at the species level. Whereas *P. lindenii* and *P. exstaminodium* can readily be identified by the lack of the pouch and of the staminode, respectively, there has been considerable confusion in respect to the other entities. This confusion arises from:

1) the use of the name *caudatum* for at least two not-identical entities (Lindley,1840; Lindley in Lindley & Paxton, 1850);

2) the description of one entity under two different names *(warszewiczianum* and *wallisii)* by Reichenbach fil. (1852, 1873/1874);

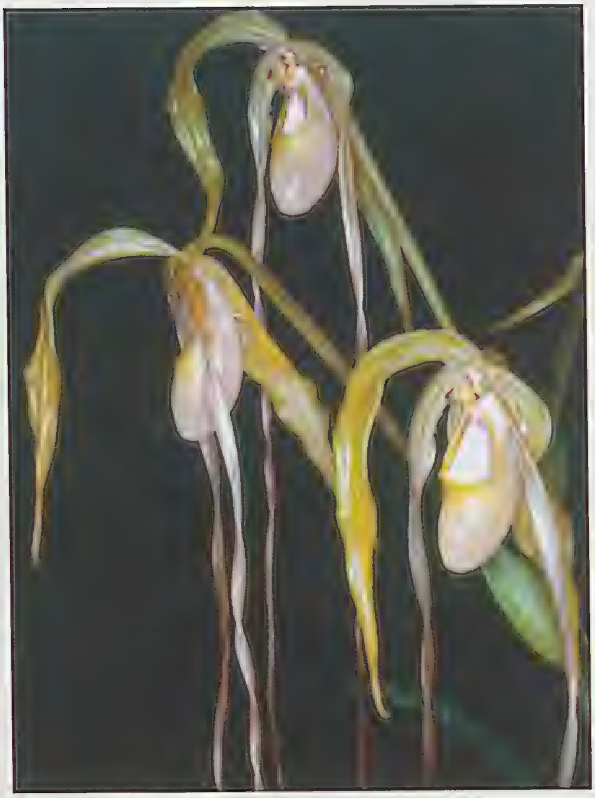
3) the misinterpretation of Reichenbach's German language article of 1852 with its mention of "*Cypripedium Humboldti* Warszewicz" and the subsequent invalid description of *Phragmipedium humboldtii* by Atwood & Dressler;

4) the misinterpretation of the names *caudatum, warszewiczianum, wallisii* and *humboldtii* in horticulture, especially in the Award Systems of the various Orchid Societies and by the Registrar for Orchid Hybrids at the Royal Horticultural Society (London, UK);

5) Garay's 1979 revision of the genus in which he recognized the true identity of *P. warszewiczianum* but failed to recognise *P. wallisii* as a synonym of *P. warszewiczianum*. Obviously he, just as Atwood & Dressler, did not fully comprehend Reichenbach's publications;

6) the belief in staminode morphology as a taxonomic marker. Reichenbach (1873/1874) already questioned the valid-

Phragmipedium warszewiczianum – (as *wallisii*) – Lithograph from *Xenia Orchidacea* (1873/74)



Phragmipedium warszewiczianum – Photograph G. J. Braem

ity of using the staminode as a differentiation criterion. Indeed the morphology of the staminode is variable within one given entity. Thus, differences in staminode morphology do not a priori point at different species.

Thus, there was urgent need to clarify all the entities involved. The result is as follows:

a) *caudatum* Lindley 1840 = *caudatum* Lindley 1840

b) *caudatum* Lindley & Paxton 1850 = *warszewiczianum* Rchb. f. 1852

c) *wallisii* horticulture and awards = *warszewiczianum* Rchb. f. 1852

d) *warszewiczianum* horticulture and awards = *popowii* Braem, Ohlund & Quené (2004)

The following Key may help to eliminate future confusion in respect to this group:

Key to *Phragmipedium* section *Phragmipedium*

1. Plants with normal cypripedioid flower morphology (2 lateral petals, 3rd petal transformed into a pouch ..... 2.

1a. Plants with 3 petals (no pouch) ..... *P. lindenii*

2. Plants with a staminode ..... 3.

2a. Plants without a staminode ..... *P. exstaminodium*

3. Leaves exceeding inflorescence, pouch not darkly stained at orifice, plants from South America ..... 4.

3a. Leaves not exceeding inflorescence, pouch darkly stained at orifice, plants from Mesoamerica ..... *P. popowii*

4. Rim of pouch flared, sepals veined, not strongly tessellated ..... *P. warszewiczianum*

4a. Rim of pouch not flared, sepals tessellated ..... *P. caudatum*

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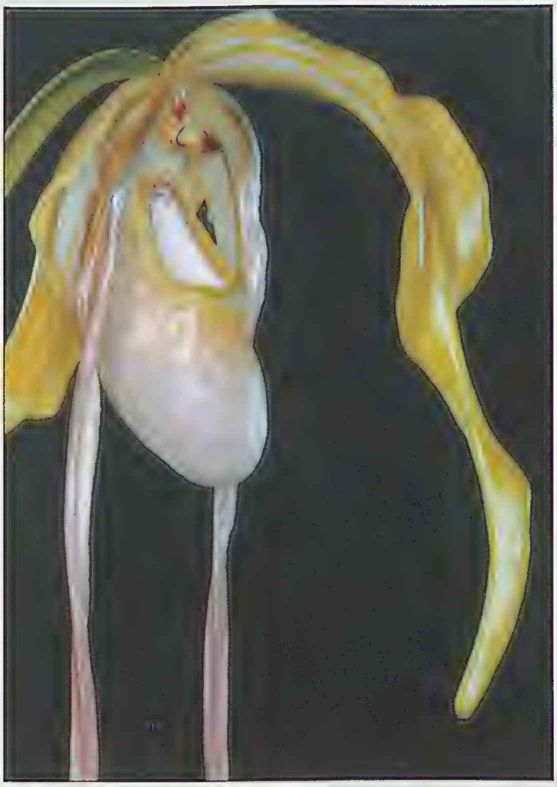

Phragmipedium warszewiczianum – Photograph G. J. Braem

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Notes on *Aerides thiboutiana* Rchb.f.

by Peter O'Byrne

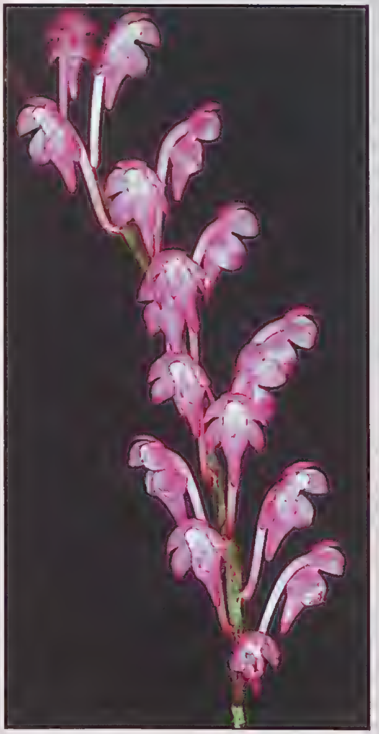
According to Thomas and Schuiteman (2002), three Aerides species are known to occur in Sulawesi. Of these, *A. inflexa* Teijsm. & Binn. is the most common (it also occurs in Borneo), but despite being large, showy and desirable, seems to be almost unknown outside Indonesia. There is a photo of this species in O'Byrne (2001). An alba-form has recently been found close to the town of Makassar. The second species is the widespread *A. odorata* Lour. Although this the best known of the three species horticulturally and is quite common across much of S.E.Asia, it is rare in Sulawesi, where it seems confined to the tip of the island's south-eastern peninsula and the small islands at the tip of that peninsula.

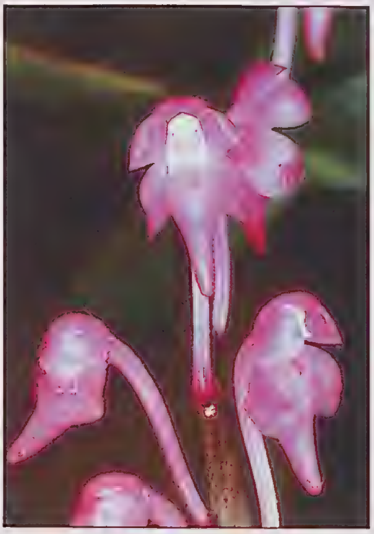
Hardly anything has ever been known about *A. thibautiana,* the third Sulawesi Aerides species. It was originally described in 1866 by Reichenbach.f. in Series 1 of the *Gardens Chronicle*, the material coming from a plant that was cultivated by Thibault and Keteleer which was said to have originated in "Polynesia". Thomas and Schuiteman list *Saccolabium huttonii* Hook.f. (from Java) and *Aerides reversa* J.J.Sm. (from Sulawesi) as synonyms of *A. thibautiana,* but while the former pair are probably the same species, it is far from certain that they are the same as *A. thibautiana*.

Many years ago, photos were taken of an unknown Aerides species that flowered in the collection at Leiden (#20431). It is doubtful if this plant is still alive. Eric Christenson, who revised the genus but never published his revision, was shown the slides and identified them as *A. thibautiana*.

Earlier this year two Aerides plants bloomed in the Singapore Botanic Gardens. Both had been collected in Sulawesi; the first one (which flowered in March) came from the island's small Central-Eastern arm, while the other (which flowered in September) originated in the southern part of the island's central massif. Both localities were at 1200-1400 metres altitude, which implies that the plants were growing in montane forest.

I e-mailed photos of the SBG specimen to Leiden, who sent back their photos and Eric Christenson's identification. The two sets of photos show the same species. Assuming Eric was correct, then we can safely say that *Aerides thibautiana* has been rediscovered. These appear to be the first photos ever published of this species.





Plants of *A. thibautiana* are small for genus. The stems are stout but only 12-20 cm long, with a few thick white roots at the base and with 5-8 stiff, stout, strap-shaped 12-20 cm long leaves that have an almost equally bilobed apex. The inflorescence is arching, 12-26 cm long with 15-18 evenly-spaced flowers on a 7-15 cm raceme. The pedicel-ovary stands upright so that all the flowers are presented on the upperside of raceme. The 11-12 mm wide x 16-17 mm high flowers have rosy-purple to pink-purple tepals with darker speckles and a darker median streak. The lip seems to be variable in colour; one specimen had a dark rosy-purple lip and spur with a greenish-purple spur tip, while the other was pale pink at the base, graduating to pink-purple at the apex of midlobe and sidelobes with scattered indistinct pink-purple spots, and a pink-purple spur with a greenish-yellow tip. The column and foot are white or pinkish-white with pink specks or streaks around the stigma. The anther is creamy-yellow. The broad, oval sepals are 6-7 mm long, the petals slightly larger. The lip (with spur) is 8-10 mm long, half the length being a narrowly conical straight spur that descends in the same axis as the column foot; the lip is 3-lobed, with midlobe and sidelobes stiffly incurved and meeting in front of column, almost closing the aperture. The flowers are quite long-lasting.

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The genus *Barkeria*

By Eric A. Christenson

The genus *Barkeria* comprises 15 species and one subspecies distributed from Mexico to Panama, with the centre of diversity clearly in the mountains of Mexico. Yet despite their ease of growth and generally showy flowers, the genus remains curiously under represented in horticulture.

The genus was proposed by Knowles and Westcott in 1838 for a species they called *Barkeria elegans* (now *B. uniflora*). During both the 19th and 20th centuries the genus was sometimes accepted as distinct while at other times it was combined with a very broadly defined *Epidendrum*, but always as a distinct group within the larger genus. It was such a broad concept of *Epidendrum* that was put forward by Ames, Hubbard and Schweinfurth in their overwhelmingly influential synopsis The genus *Epidendrum* in 1936. This led most subsequent authors to treat species of *Barkeria* as *Epidendrum* including the equally influential horticultural work, the *Encyclopedia of Cultivated Orchids* by Hawkes in 1965.

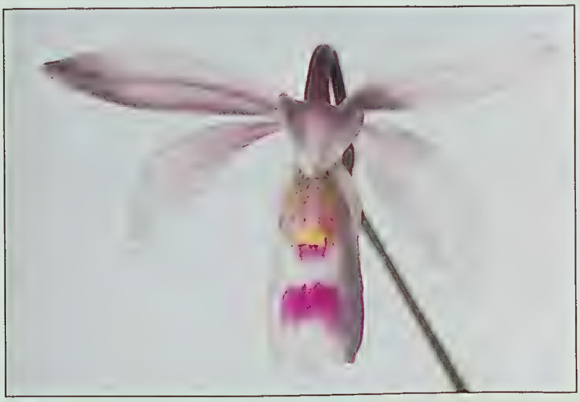
Things started to change in *Epidendrum* with the reestablishment of *Encyclia* (Dressler, 1961) and the unequivocal resurrection of *Barkeria* by Thien and Dressler (1970). Subsequently, Federico Halbinger produced a superb monograph of the genus published in instalments in the Mexican orchid journal *Orquídea* (Halbinger, 1973-1974). With some additions and a few nomenclatural changes, his work remains the basis for our understanding of the species. Given the general unavailability of Halbinger's publications, I attempt here to distil the information for a modern audience.

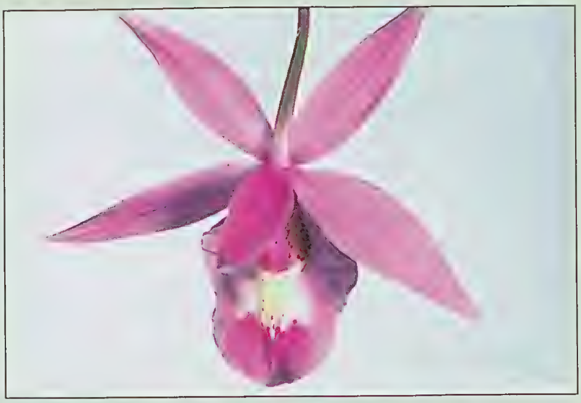
The Species

All species of *Barkeria* produce short, cane-like, pseudobulbous stems, which bear several deciduous leaves toward their apex. The pseudobulbs are narrowly fusiform (spindle-shaped) and rather inconspicuous when still clothed in leaves. While a few species form dense clumps of growths, most species have new growths that arise several nodes above the previous one yielding a somewhat ascending growth habit. The terminal inflorescences are long-pedunculate with the inflorescences commonly much longer than the stems that produce them. Most species bear unbranched racemes although some produce panicles or may secondarily branch yielding a subsequent flush of flowers. In all species the flowers are lightly nodding. Some species have fragrant flowers but most have completely odourless flowers. The lips have a longitudinal callus along the midvein, which may or may not be organized into distinct keels. Most species are adaptable and may be found as either epiphytes or lithophytes in nature depending on the local habitat.

Barkeria barkeriola – This species is relatively rare in cultivation. And, as a horticulturally "lesser" version of *B. uniflora*, there is little reason that it should be more widespread.

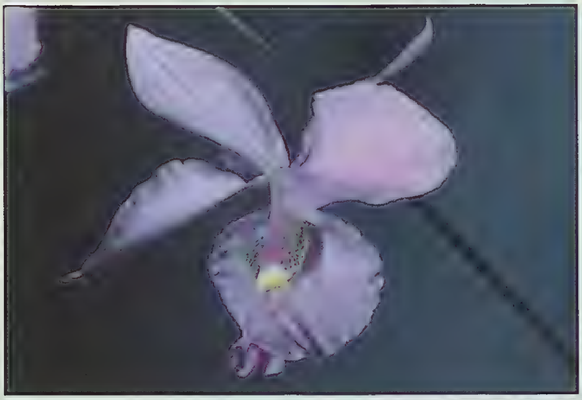
The individual flowers have subtle, yet complex coloration. The sepals and petals are typically pastel pink and in high contrast to a stark white lip with a subapical dark, red-purple blotch. The pale greenish white column is heavily spotted with dark purple and set off by a clear yellow anther. In nearly every way the flowers of *B. barkeriola* resemble those of *B. uniflora*. The lips


Barkeria barkeriola. photographer: G. Kennedy

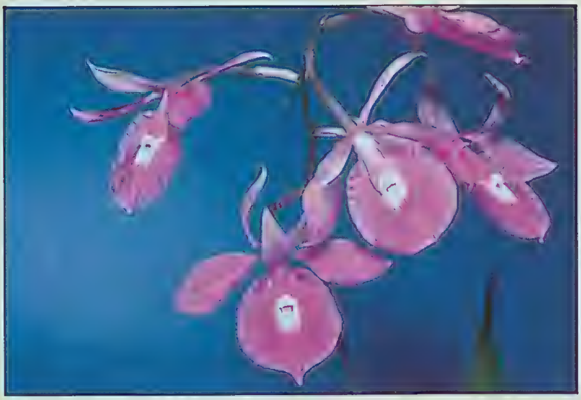

Barkeria lindleyana. photographer: G. Kennedy

Barkeria lindleyana. photographer: G. Kennedy

Barkeria lindleyana. photographer: L. B. Kuhn



Barkeria melanocaulon showing the column appressed to the surface of the lip. photographer: W. Scheeren



Barkeria scandens, a species long known in horticulture as *B. cyclotella*. photographer: L. B. Kuhn

of *B. barkeriola* are reported to fold along the midvein to an extent greater than in the usually flat lips of *B. uniflora*, but this character requires further documentation.

In addition to being geographically isolated, *B. barkeriola* differs from *B. uniflora* by having smaller plants and flowers, sepals longer than the petals, a column with the wings widest above the middle, and a visible sac-like nectary fused to the ovary. The flowers of *B. barkeriola* are 2.5-3.5 cm across in contrast to the flowers of *B. uniflora*, which are 4-7 cm across. Most authors now consider the two entities to be clearly defined sister species.

Barkeria barkeriola is relatively widespread in the Mexican states of Colima, Jalisco, Nayarit and Sinaloa at elevations of 600-1000 m. While nothing I can find has been published on its conservation status in nature, it is probably "safe for the moment" given its relatively broad distribution.

Barkeria dorotheae – This species was only described in 1976 and is most closely related to *B. barkeriola*. According to Halbinger, it differs from *B. barkeriola* by a number of characters, most significantly the lip callus. *Barkeria dorotheae* has a callus that terminates in three closely parallel keels that continue to the lip apex. The up to 12 lilac flowers are up to 3.5 cm across, firmly in the size range of *B. barkeriola* but similarly smaller than *B. uniflora*.

Perhaps the most distinct feature of the species, and one that makes it comparatively easy to recognize, is that although the lip when flattened is elliptic (football-shaped) to obovate (egg-shaped that is attached by the narrow end), the lip in natural position is quite rectangular. The lateral margins have a rather sharp fold, much like the sides of a drop table.

When published, the species was recorded from the Mexican states of Colima and Jalisco at remarkably low elevations of 20-50 m above sea level. A detailed description of the habitat was given by May (1982). I am unaware of any subsequent articles that either expand on the distribution of the species or comment on its more recent status in nature.

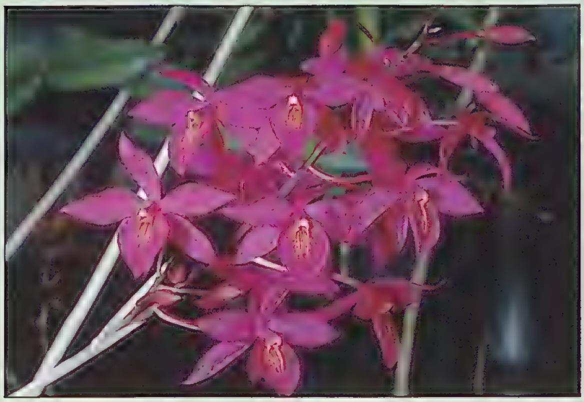
Barkeria fritz-halbingeriana – This species, together with *B. melanocaulon* and *B. whartoniana*, form what I would call the hog-nosed group of species. They all have rather short columns with broad column wings giving the flowers a certain look. In the case of this species and *B. melanocaulon*, the columns are appressed to the surface of the lip, while in *B. whartoniana* the column apex is distinctly raised up, away from the lip.

Pale pink flowers are produced in abundance with up to 30 flowers per inflorescence. The inflorescences are initially unbranched racemes but may subsequently produce short lateral branches. The lips, about 1.4 x 1.1 cm, typically are darker purple at the tip. This is not a miniature species: the leafy stems grow in dense caespitose clumps to 50 cm tall and the wiry inflorescences are that length again.

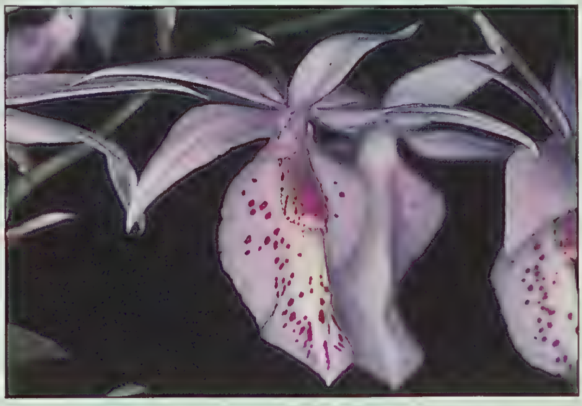
Barkeria fritz-halbingeriana is a lithophyte endemic to the coast of Oaxaca, Mexico, at elevations of 500-670 m where it is very rare (Soto, 2002).

Barkeria lindleyana – One of the more commonly encountered species in cultivation, *B. lindleyana* also appears to be particularly amenable to cultivation. This is most likely due to two factors. First, most of our plants originate from Central America where, although they grow in seasonally dry habitats, the extremes are less severe than for many of the Mexican species. Second, this species has a very broad elevational range, recorded from 800-1600 m in Costa Rica (Mora & Atwood, 1992). These factors no doubt help them to survive in a mixed collection when their seasonal requirements are often ignored.

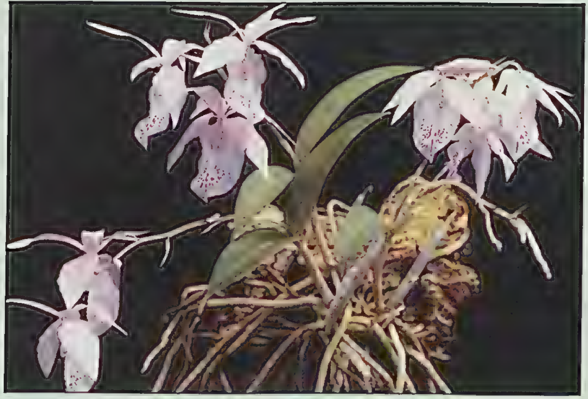
The flowers are large for the genus with the lips measuring to 3 x 2.5 cm. The plants are somewhat ascending and have leafy



Barkeria skinneri. photographer: L. B. Kuhn



Barkeria spectabilis. photographer: E. A. Christenson



Barkeria spectabilis. photographer: Christenson Archives

Barkeria spectabilis at 8,000 ft. elevation in Chiapas, Mexico. photographer: R. McCullough

stems to 30 cm long and erect inflorescences to twice that long. Well-grown plants can bear up to 20 flowers per stem. The flowers are highly variable in coloration. The type plant had uniformly pink flowers with a lip that was white in the centre and slightly darker purple at the apex. Such a clone was illustrated in the *Botanical Magazine* (pl. 6098) and in Halbinger and Kennedy (1980). This colour variant is not commonly seen in cultivation today. Most of the plants in cultivation today have rose-pink to magenta flowers, highlighted by a large white patch in the centre of the lip and a distinctly darker magenta apex. These plants are sometimes recognized as *B. lindleyana* var. *centerae*.

Barkeria lindleyana* subsp. *vanneriana – This subspecies has spent its time either as a distinct species or as a subspecies of *B. lindleyana*. Modern authors, following the observations of Thien and Dressler (1970), treat this entity as a northern disjunct part of *B. lindleyana*. The Costa Rican subspecies is an obligate epiphyte, which produces caespitose (clump-forming) plants wherein new growths are produced from the basal node of the old growth. Plants of this subspecies, in contrast, grow primarily as lithophytes and are ascending, with new growths routinely arising from the second or third node on the pseudobulb.

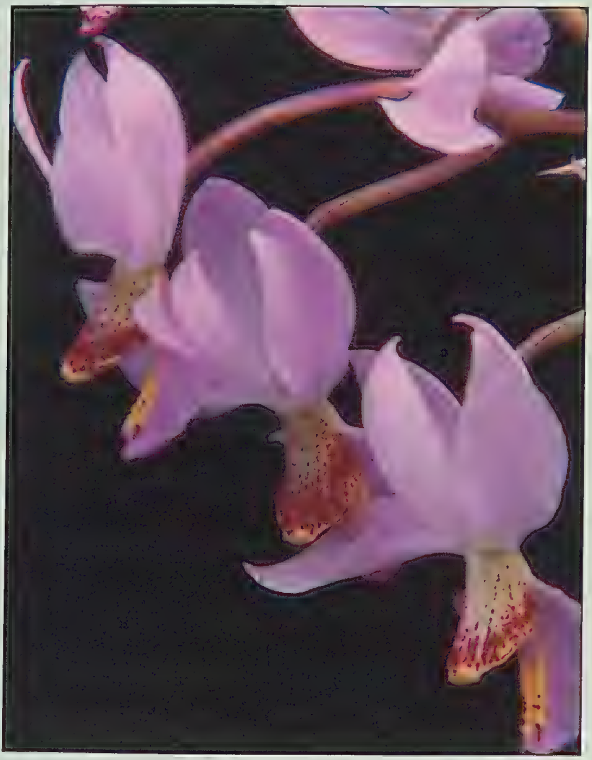
The flowers of subspecies *vanneriana* are pastel pink. The lip is similarly pastel pink with a white centre and a dark purple apex. The column is pastel pink with a blushing rose apex and translucent very pale greenish white wings spotted with dark purple. A distinctive feature is the subapical pinching of the lip, which yields a deltoid shaped lip base with a squarish apex. The lip bears three prominent keels on the white section between the column apex and the purple lip apex.

The species has been recorded from the Mexican states of Guerrero, Oaxaca, and Puebla at elevations of 1000-1900 m. Nothing has been recorded in the literature concerning its conservation status in nature.

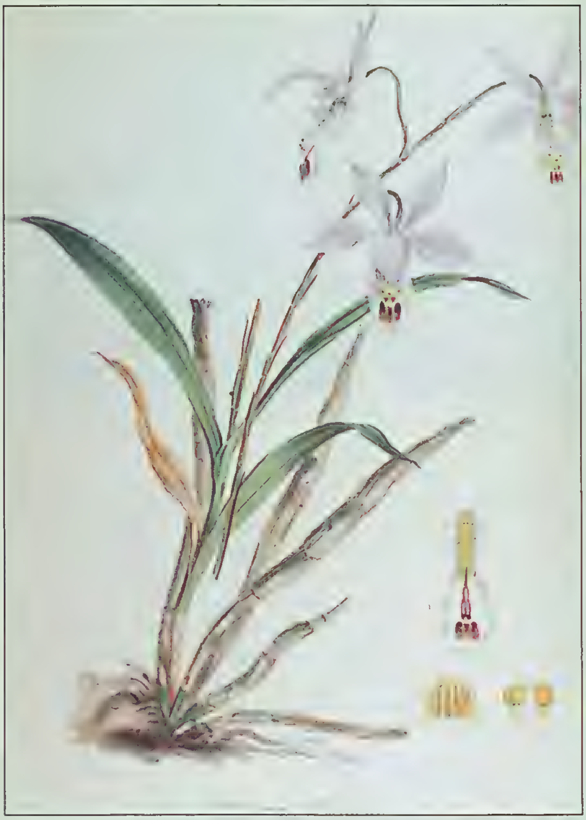
Barkeria uniflora at 3,900 ft. elevation in Mexico.

Barkeria melanocaulon – Like *B. fritz-halbingeriana*, *B. melanocaulon* has a short, broad column that is appressed to the upper surface of the lip. They also have rose-pink flowers of similar size and shape, although *B. melanocaulon* has much broader petals (to 0.7 cm wide in *B. fritz-halbingeriana* versus to 1.8 cm wide in *B. melanocaulon*). There, however, the similarity ends. Unlike the densely caespitose plants *B. fritz-halbingeriana*, plants of *B. melanocaulon* are strongly ascending by virtue of the new growths which arise from a stem node that is several nodes above the previous growth.

Barkeria melanocaulon is a lithophyte on limestone boulders in the mountains of central Oaxaca, Mexico, at elevations of 1600-1800 m. It is considered threatened in nature. This species was redescribed in 1973 as *B. halbingeri* and is still found in collections under that name. Soto (2002) reports that the plants from the type locality of that name near the community of Mitla has been extirpated by overcollection for horticulture.



Barkeria whartoniana 'J. Gordon' CHM/AOS. photographer: Christenson Archives



The original illustration of *Barkeria elegans* by Knowles and Westcott from the Floral Cabinet in 1838, a species now known by the rather inappropriate name of *B. uniflora*. photographer: E. A. Christenson

Barkeria naevosa – Although not as showy as some species, I actually consider this species to be the most attractive in the genus. The medium pink flowers have a yellow lip with highly contrasting pink veins of the same shade as the sepals and petals. The result is most pleasing. There is also a rarer yellow phase of the species with exceptional clones having nearly pure yellow petals and lip and sepals that are yellow with pink suffusion. Such a clone was illustrated by Marsh (1987). Up to 12 flowers are produced with each one 2.5-4.5 across the spreading lateral sepals.

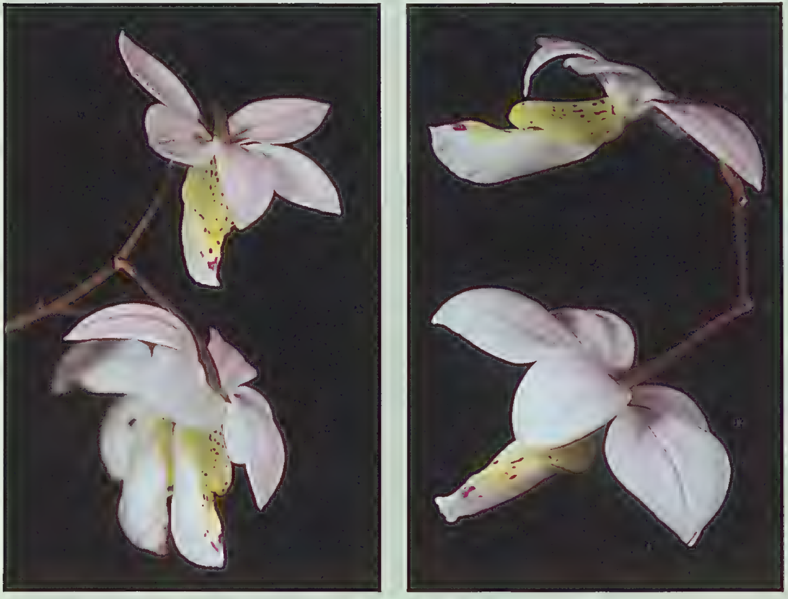
In the past *B. naevosa* has been confused with and (or) considered a variety of what is now *B. obovata* and the flowers are superficially similar in shape. In addition to the consistent differences in the color of the sepals and petals, *B. naevosa* has a conspicuous swollen nectary where the lip attaches to the ovary, an external nectary that is completely absent in *B. obovata*. In addition, the flowers of *B. naevosa* has a perceptible fragrance during the day that is also absent in *B. obovata*.

Barkeria naevosa has been recorded from 400-1000 m in elevation in the Mexican states of Guerrero, Michoacán and Oaxaca. The primary flowering season in nature is December to March but the inflorescences not infrequently produce secondary branches and reflower several months later.

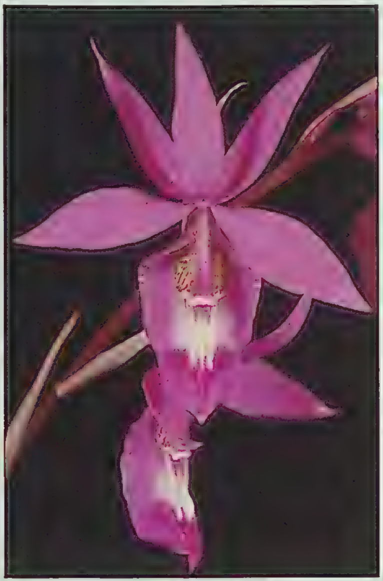
Barkeria obovata –This is the only species in the genus for which I can claim some direct credit as a taxonomist. I visited the herbarium in Prague, Czech Republic, and was able to examine the holotypes of the 19th century botanist Presl based on collections made during a circumnavigation of the globe by a collector named Haenke. One of the highlights for me as a scientist was the elucidation of a truly obscure name from Mexico, *Oncidium obovatum* Presl. While everyone, including most botanists, bemoans the changing of plant names, in this case I got lucky.

Prior to my research this species had been known as *Barkeria chinensis* because of the faulty original information given to English botanist John Lindley that the species actually came from China! Victorian German taxonomist Reichenbach tried to correct the problem by calling this plant by the rather cumbersome species name of *nonchinense*, a name that didn't stand the test of nomenclatural rules then, or now. So changing the specific epithet to obovatum based on an earlier name, meaning the lip is egg-shaped and attached to the flower by the narrower end, isn't such a bad thing after all.

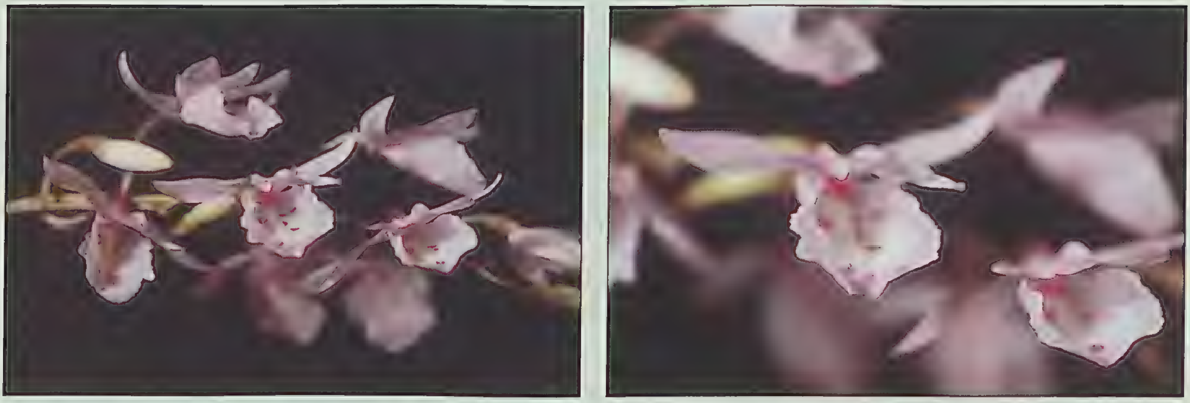
In general, *B. obovata* is the least attractive species in the genus despite having often-abundant flowers on many branched inflorescences. The flowers are small and rather dull-coloured with the sepals and petals pale greenish yellow, with or without some pink suffusion, and a similar lip with or without purple markings along the veins. In addition, many populations of *B. obovata* are cleistogamous and have flowers that never fully open, opting instead to go directly to fruit (Salazar and Arguijo, 1993).



Barkeria dorotheae. Grower: Hoosier Orchid Company. Photographer: L. Glicenstein.



Barkeria lindleyana. Grower: Hoosier Orchid Company. Photographer: L. Glicenstein.



Barkeria palmeri. Grower: Hoosier Orchid Company. Photographer: L. Glicenstein.

That said, there is at least one population of *B. obovata* that has beautiful, ivory white flowers with a boldly purple-spotted lip and the flowers are not self-pollinating. This population has rarely been seen in cultivation but was illustrated by Halbinger (1973a, p. 625, no. 4). Hopefully these plants will be artificially propagated, become more common in cultivation, and be used for hybridisation.

Barkeria palmeri – This species, endemic to the west coast of central Mexico from sea level to 1300 m (Soto, 1990), has been confused with and considered a subspecies of what is now *B. obovata*. They are similar species but *B. palmeri* has consistently pale rose-lilac sepals and petals and a lip that is shallowly notched at the apex (acute in *B. obovata*) with minutely toothed margins. The lip of *B. palmeri* is white with yellow callus keels and irregular magenta markings radiating from the midvein.

The plants are miniature with stems to just 15 cm long. Like *B. obovata*, the inflorescences of *B. palmeri* can be unbranched racemes or panicles. Really well grown plants can bear up to 100 flowers that are about 3 cm across the lateral sepals.

Barkeria scandens – This species has long been known in both botany and horticulture by the later name *B. cyclotella*. Even though this name change dates from 1977, plants of *B. scandens* are still commonly found tagged as *B. cyclotella* in grower's collections. It is a showy plant with up to 15 flowers densely arranged on inflorescences that are wand-like and up to 45 cm long. The flowers are uniformly dark rose pink to magenta and are only variable in the colour of the column apex and callus, which are either stark white or dark yellow. Each flower is 3-4.5 cm across.

Barkeria scandens is closely related to *B. lindleyana* and *B. skinneri* by virtue of having three prominent callus keels. It differs from *B. lindleyana* by its generally smaller flowers with a flat lip, unlike the shallowly convex lip of *B. lindleyana*. It differs from *B. skinneri* by having a lip much larger than the petals instead of being subequal to the petals as seen in *B. skinneri*.

Barkeria scandens is native to the Mexican states of Guerrero, México, Michoacán, and Oaxaca at elevations of 1300-1900 m where it may be found as either a lithophyte or epiphyte. Halbinger notes that in some areas of abundance the inflorescences are harvested and sold at local market for decoration.

Barkeria schoemakeri – Narrowly endemic to the Mexican state of Michoacán, this species was originally collected at an elevation of 620 m. It is not often seen in cultivation, partly because of its inherent rarity, but probably more because it is the least showy species in the genus. The flowers are only 1.6 cm across and are produced in rather short inflorescences that usually bear only 4-5 flowers.

The sepals and petals of *B. schoemakeri* are the palest pinkish white. Lip colour is variable with pale clones having just a rose-pink patch on the apical half while dark clones have a vibrant magenta band down the middle with radiating rose-pink veins. The purple mottled column is sometimes set off by a bright yellow anther. Though small it is really quite charming.

Barkeria skinneri – This is also one of the more common species encountered in cultivation. The flowers, up to 4 cm across, are mauve to magenta with only the yellow callus keels in contrast. They are produced in dense clusters of up to 25 flowers. This species is unusual in the genus in that the lip is essentially the same size and shape as the petals.

Barkeria skinneri is native to Guatemala and adjacent Mexico at elevations of 1200-1800 m. In Mexico, *B. skinneri* is only known from a few localities in the southern state of Chiapas. With its showy flowers, the species is still collected in the wild for sale at local markets and the species is under Special Protection status in Mexico for that reason (Soto, 2002).

Barkeria spectabilis – This species is arguably the finest in the genus by virtue of its large flowers on small, compact plants. The stems grow to 12 cm tall and produce an inflorescence of equal or slightly longer length. Each inflorescence bears 3-10 flowers although exceptional clones have been recorded with 15 flowers. The pastel pink flowers with contrasting dark purple column and marks on the lip are large for the genus with lips to 4.2 cm long and 3 cm wide. Some individuals also have a contrasting dark purple lip apex.

Historically there were plants in cultivation in Europe that had conspicuously spotted sepals and petals although I have not seen this colour variant in cultivation today. Such a spotted form was illustrated for the *Botanical Magazine* (pl. 4094).

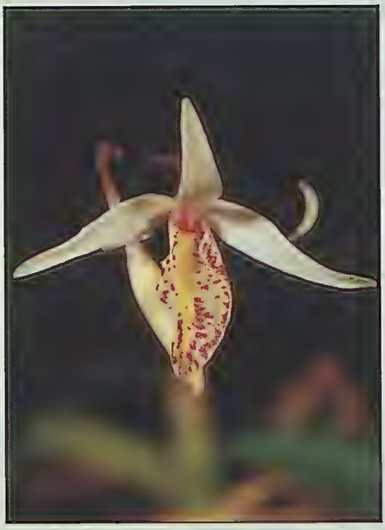
The good news for this species is that despite its showy flowers and on-going collection from the wild for local markets, it remains common in nature. It occurs at elevations of 1500-2000 m in nature (Soto, 2002).

Barkeria strophinx – Although Hunt (1996) proposed that this was a natural hybrid of *B. naevosa* and *B. palmeri*, subsequent authors consider *B. strophinx* a valid species in its own right (Soto, 2002). It's great similarity to *B. naevosa* led *Barkeria* expert Halbinger to once consider it to be an inland subspecies of *B. naevosa*.

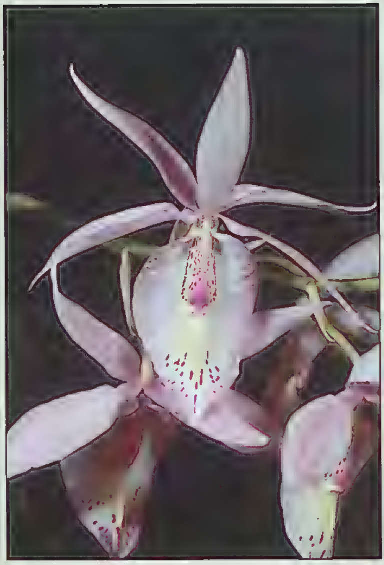
The epiphytic plants, which grow to 35 cm tall when in flower, produce panicles of up to 30 flowers. Each flower is fragrant and up to 2.5 cm across. The sepals and petals are pale rose-lilac and the lip is white to pale yellow with magenta veins.

Barkeria strophinx is a narrow endemic on the borders of the Mexican states of Mexico and Michoacán at 700-1100 m. It is threatened in nature and Soto (2002) proposes that it would be better treated as a species "Under Special Protection."

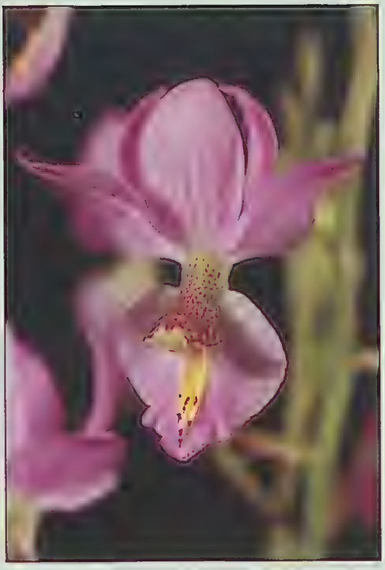
Barkeria uniflora – At first glance this seems to be quite the misnomer since *uniflora* means having a single flower and there are no species of *Barkeria* which bear just a single flower. Well, that is only partly true. Most species of *Barkeria* exhibit many properties of classic weed plants including the tendency to flower precociously on small plants one would hardly consider to be



Barkeria obovata, a species long known by the anachronistic name *B. chinensis*. Grower: Hoosier Orchid Company. Photographer: L. Glicenstein.



Barkeria spectabilis. Grower: Hoosier Orchid Company. Photographer: L. Glicenstein.



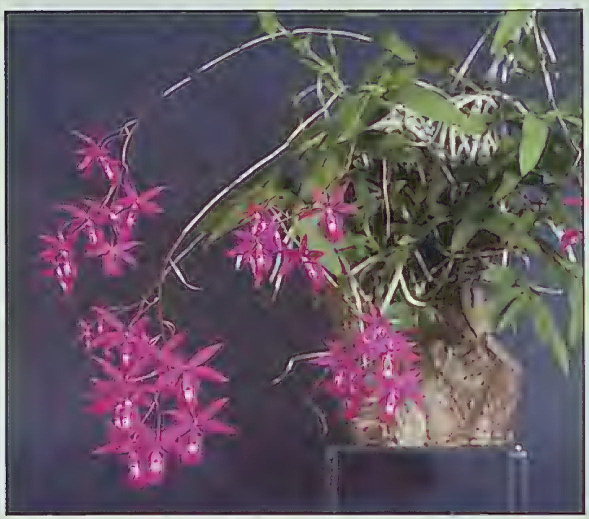
Barkeria whartoniana. Grower: Hoosier Orchid Company. Photographer: L. Glicenstein.

physiologically mature. Indeed, most of the smaller statured species of *Barkeria*, like *B. schoemakeri*, routinely flower in flask when grown from seed.

In the case of *B. uniflora*, the plants typically produce three or more flowers per inflorescence in cultivation. However, under the more stressful existence in nature, many plants in a given population will flower on small plants with just a single flower. Hence the origin of the rather unfortunate specific epithet. What compounds the situation is that the name *uniflora* is the earlier valid name for the species described later as *B. elegans*, the type species of the genus. Pardon the pun, but *elegans* is a far more elegant name for this charming species.

Barkeria whartoniana – Superficially this species is a look alike for both *B. fritz-halbingeriana* and *B. melanocaulon*. But where those species have a column that is tightly appressed to the upper surface of the lip, the column of *B. whartoniana* is elevated, forming an open, acute angle with the lip.

Growing as either a terrestrial or epiphyte in nature, the stems grow to 24 cm long with inflorescences as long or slightly longer than the stems. Up to 15 pale pink flowers are highlighted by a bright yellow callus and a highly contrasting green column that is heavily marbled with dark purple.



Barkeria scandens 'Morro Bay'. Grower & photographer: M. Turkel.

Barkeria whartoniana is a narrow endemic in eastern Oaxaca at 150-200 m in elevation and its very limited habitat is being locally decimated for cement production (Soto, 2002). As a result, the species is subject to Special Protection in Mexico.

Aspects of Culture

To understand the growing conditions required by *Barkeria*, two things must be considered: (1) their seasonally dry, cool native habitats, and (2) the plant's oversized, fleshy roots.

During the active growing period, plants of *Barkeria* should be treated like their cousins *Cattleya* and *Laelia*. Grow them in bright light and provide good air movement. When in growth, the plants show a remarkable adaptation to a range of temperatures and may be grown anywhere from cool to warm. The only precaution is to avoid excess heat build-up on the leaves at higher air temperatures that can yield to scorch damage ("sunburn").

During this period the plants should be watered and fertilized regularly. After the growths mature, however, all fertilizer should be withheld and watering should be reduced to a bare minimum. In most cases periodic misting is all that is required to avoid desiccation of the fleshy roots. After the plants flower complete leaf loss is normal. When dormant, the growing temperatures should be dropped to the cool-cold range. Not only does this imitate the conditions in nature but it will avoid the damaging moisture loss that would occur if the unfortunate combination of no water and higher temperatures was followed.

Plants of *Barkeria* have very thick, fleshy roots in proportion to the diameter of the stems. Any veteran grower will attest that the secret of successfully growing species is to make sure the plants have healthy roots. If the roots are healthy, vigorous shoots and flowers will follow. The secret of growing healthy *Barkeria* roots is to try to avoid any growing medium whatsoever. The roots do best when completely unencumbered and kept away from anything that can retain water. For this reason most growers have their greatest success by growing plants of *Barkeria* either on bare slabs or in baskets without any potting added.

I visited Robert Marsh in Texas who specializes in *Barkeria* and its hybrids. When he removes plantlets from a flask, he places them directly into empty, open-mesh, plastic flats – the kind of flats the rest of us put multiple potted plants into. The roots readily grow out of the bottom of the flat and through the hardware cloth of the bench top and the shoots reorient themselves to grow erect. As an eyewitness to several hundred of his seedlings, many of them flowering precociously in the flats, I can attest that his losses from flask to flowering seedlings were essentially zero. Similarly, I removed some overgrown *Barkeria* seedlings from flask for my friend Marni Turkel in California and placed them densely onto corkbark slabs with nylon monofilament and no moisture-retaining pad of moss at the roots. When she saw my very different looking adhoc community slabs, a look of mild horror came across her face. It is testament to our friendship that she accepted my assurances and could report several months later that the plants were healthy, producing new growths, and that the loss out of flask was truly minimal. Once again, the take home message is to keep the roots away from any potting material if possible. If one must err, err on the side of root exposure and dryness.

Only under less-than-ideal growing conditions should the plants be grown in pots and then special attention should be paid to growing them in shallow, azalea-type pots with an open medium that doesn't retain excessive water. In New England, where we often had tediously long stretches of grey winter days that made any watering in the greenhouse difficult at best, I grew plants of *Barkeria* in shallow terracotta pots of equal parts of washed, medium-grade fir bark and equal sized hardwood charcoal. This mixture, which dried out rapidly in the porous pot, was necessary given the less than ideal winter conditions.

Plants of *Barkeria* are generally resistant to the insects typically found in a hobbyist greenhouse. The few insects that do pester them, such as soft brown scale, are generally only a problem when the plant is distressed to begin with or when there is an unchecked infestation in the growing range. Perhaps the only insects that should be watched for on an annual basis are aphids, which can appear on the congested heads of flower buds just as the first flowers open. The bright, airy conditions the plants require pretty much precludes routine bacterial or fungal problems.

Given even rudimentary knowledge of their growing requirements, plants of *Barkeria* make excellent additions to a mixed species collection. In addition to the species, interspecific hybrids have proven easy to make and grow as well as some intergeneric hybrids with *Epidendrum* that show real commercial pot plant potential.

Conservation

Some species of *Barkeria* are rather localized endemics that face pressure from habitat loss due to man's activities. In the past, plants of *Barkeria* were collected in great quantities from the wild to satisfy horticultural demand, adding to that pressure. Thankfully collecting from the wild has largely stopped. Despite their not being as common in cultivation as they should be, *Barkeria* is one of the easiest genera to propagate from seed. In addition, the smaller-statured species routinely flower on their first or second growth out of flask making for a fast, potentially profitable greenhouse crop. This is an adaptation for many of the plants to life as twig epiphytes where they often inhabit ecological niches that are relatively short-lived in nature. So *ex situ* conservation appears viable as long as there is a commercial market for the plants.

Acknowledgements

I thank my friend Marni Turkel for our discussions on *Barkeria* culture and the estate of the late Ray McCullough for allowing me to use many of his photographs in my publications.

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Barkeria spectabilis. Grower & photographer: M. Turkel.

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Barkeria at a glance

By Eric A. Christenson

BARKERIA Knowles & Westc., Floral Cab. 2:7, t. 49. 1838.

Barkeria barkeriola Reichb.f., Gard. Chron., n. s., 22:616. 1884; *Epidendrum barkeriola* Reichb.f., Gard. Chron., n. s., 22:616. 1884, in syn. TYPE: [MEXICO]. *Hort. Sander* s. n. (preserved?).

Distribution: Mexico.

Barkeria dorotheae F. Halbinger, Orquidea(Méx.) 6(2):40. 1976. TYPE: MEXICO. Jalisco, near Cihuatlán, 11 Jan 1976, *F. Halbinger* 154 (holotype: MEXU; isotypes: AMES, ENCB).

Distribution: Mexico.

Barkeria fritz-halbingeriana Soto Arenas, Orquidea(Méx.) 13(1-2):245. 1994. TYPE: MEXICO. Oaxaca, Dept. Juquila, km 34.4 on highway from Puerto Escondido to Oaxaca, near San Gabriel Mixtepec, 670 m, 25 Nov 1992, *M. A. Soto et al.* 7480 (holotype: AMO).

Distribution: Mexico (Oaxaca).

Barkeria lindleyana Batem. ex Lindl., Bot. Reg. 28: misc. 2. 1842; *Epidendrum lindleyanum* (Batem. ex Lindl.) Reichb.f., Ann. Bot. Syst. 6:375. 1862. TYPE: COSTA RICA. *Skinner s. n.* (holotype: K).

synonym: *Barkeria lindleyana* var. *centerae* Endr. & Reichb.f., Gard. Chron. 1873:1597. 1873; *Epidendrum lindleyanum* var. *centerae* (Reichb.f.) Veitch, Man. Orch. Pl. 6:105. 1890. TYPE: COSTA RICA. *Endres s. n.* (holotype: W).

Distribution: Costa Rica.

Note that variety *centerae* has a darker lip apex, heart-shaped lip base, and flowers at a different season than variety *lindleyana*.

Barkeria lindleyana ssp. ***vanneriana*** (Reichb.f.) L. B. Thien, Brittonia 22(4):298. 1970; *Epidendrum vannerianum* Reichb.f., Gard. Chron., n. s., 24:678. 1885; *Barkeria vanneriana* Reichb.f., Gard. Chron. 2:678. 1885. TYPE: [MEXICO]. *Hort. Vanner ex Sander s. n.* (holotype: W).

Distribution: Mexico.

Barkeria melanocaulon A. Richard & Galeotti, Comptes Rend. Paris 18: 512. 1844, *nomen;* Ann. Sci. Nat., ser. 3, 3:22. 1845; *Epidendrum melanocaulon* (A. Richard & Galeotti) Reichb.f., Ann. Bot. Syst. 6:375. 1862. LECTOTYPE (designated by Soto Arenas): MEXICO. Oaxaca, S. Ana near Yavezia, 6000-6500 ft., June 1840, *Galeotti 5069* (lectotype: W; isolectotypes: BR, G, P, W).

synonym: *Barkeria halbingeri* L. B. Thien, Amer. Orchid Soc. Bull. 42(5):421. 1973. TYPE: MEXICO. Oaxaca, near Mitla, 6 Apr 1971, *F. Halbinger* 122 (holotype: US; isotype: AMO).

Distribution: Mexico (Oaxaca).

Barkeria naevosa (Lindl.) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19:46. 1923; *Epidendrum naevosum* Lindl., Folia Orch. 4. 1853; *Epidendrum chinense* var. *naevosum* (Lindl.) L. O. Wms., Ceiba 2:159. 1951; *Barkeria chinensis* ssp. *naevosa* (Lindl.) Thien, Brittonia 22(4):293. 1970. TYPE: MEXICO. *Galeotti 5330* (holotype: K; isotype: W).

Distribution: Mexico.

Barkeria obovata (Presl) E. A. Christenson, Lindleyana 3(4):221. 1988 (1989); *Oncidium obovatum* Presl, Rel. Haenke. 1:99. 1827. TYPE: MEXICO. *Presl s. n.* (holotype: PR).

synonym: *Broughtonia chinensis* Lindl., Hook. Journ. Bot. 1: 492. 1842; *Laeliopsis chinensis* (Lindl.) Lindl. ex Reichb.f., Saunders Refug. Bot. 2: t. 139. 1872; *Epidendrum chinense* (Lindl.) Ames, Sched. Orch. 7:4. 1924; *Barkeria chinensis* (Lindl.) L. B. Thien *ex* Dressler, Taxon 15(6):241. 1966. TYPE: GUATEMALA ["Hong Kong"]. *Hinds s. n.* (holotype: K).

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Distribution: Mexico to Panama.

Barkeria palmeri (Rolfe) Schltr., Beih. Bot. Centralbl. 36(2): 470. 1918; *Epidendrum palmeri* Rolfe, Kew Bull. 1893:6. 1893; *Barkeria chinensis* ssp. *palmeri* (Rolfe) Thien, Brittonia 22(4): 293. 1970. TYPE: MEXICO. Bought in a market in Colima, *Palmer 1201* (holotype: K; isotypes: NY, US).

synonym: *Epidendrum cubense* Lindl., Bot. Reg. Misc. 17. 1843; *Broughtonia cubensis* Lindl. ex Cogn., Symb. Antill. 6:542. 1910; *Laeliopsis cubensis* Lindl. ex Cogn., Symb. Antill. 6:542. 1910. TYPE: ["Cuba"]. (holotype: K).

Distribution: Mexico.

Barkeria scandens (Llave & Lex.) Dressler & Halbinger, Orquidea (Méx.) 6:252. 1977; *Pachyphyllum scandens* Llave & Lex., Nov. Veg. Desc. Fasc. II, Orch. Opusc. 3:17. 1825. TYPE: MEXICO. Huandacareo, Sept. (preserved?).

synonym: *Barkeria cyclotella* Reichb.f., Gard. Chron., n. s., 13:72. 1880; *Epidendrum cyclotellum* Reichb.f., Gard. Chron., n. s., 13:72. 1880; *Epidendrum lindleyanum* var. *cyclotellum* (Reichb.f.) Veitch, Man. Orch. Pl. 6:105. 1890; *Barkeria lindleyana* ssp. *cyclotella* (Reichb.f.) L. B. Thien, Brittonia 22(4):298. 1970. SYNTYPES: [MEXICO]. *Hort. Bull s. n.* (syntype: W); *Hort. Day s. n.* (syntype: W).

Distribution: Mexico.

Barkeria schoemakeri F. Halbinger, Orquidea (Méx.) 4(10):296. 1975. TYPE: MEXICO. Michoacán, *F. Halbinger 151* (holotype: MEXU).

Distribution: Mexico.

Barkeria skinneri (Batem. ex Lindl.) Paxt., Mag. Bot. 15:1, t. 1848; *Epidendrum skinneri* Batem. ex Lindl., Bot. Reg. 22: t. 1881. 1836; *Dothiolophis purpurea* Raf., Fl. Tellur. 4:39. 1838. TYPE: GUATEMALA. *Skinner s. n.* (holotype: K).

synonym: *Barkeria skinneri* A. Rich. & Gal., Comptes Rend. Paris 18:506. 1844, *nomen*.

synonym: *Barkeria skinneri* var. *major* Paxt., Mag. Bot. 16:59. 1849. TYPE: (preserved?).

synonym: *Epidendrum fuchsii* Regel, Ind. Sem. Hort. Turic. 4. 1850, *nomen;* Schweiz. Zeitschr. Gartenb. 9:202. 1851. LECTOTYPE (designated by Christenson, 1996): *Hort. Bot. Turic. s. n.* (lectotype: Z).

synonym: *Epidendrum skinneri* var. *superbum* Warner, Sel. Orch. Pl. 1: t. 38. 18621865. TYPE: GUATEMALA. Skinner ex Hort. *Veitch s. n.* (preserved?).

Distribution: Mexico and Guatemala.

Barkeria spectabilis Batem. ex Lindl., Bot. Reg. 28: misc. 43. 1842; *Epidendrum spectabile* (Batem. ex Lindl.) Reichb.f., Ann. Bot. Syst. 6:375. 1862; *Barkeria lindleyana* ssp. *spectabilis* (Batem. ex Lindl.) Thien, Brittonia 22(4):297. 1970. TYPE: GUATEMALA. *Skinner s. n.* (holotype: K).

Distribution: Mexico to Nicaragua.

Barkeria strophinx (Reichb.f.) Halbinger, Orquidea (Méx.) 6:253. 1977; *Epidendrum strophinx* Reichb.f., Linnaea 41:78. 1876; *Barkeria naevosa* ssp. *strophinx* (Reichb.f.) F. Halbinger, Orquidea (Méx.) 3:374. 1974. TYPE: "GUATEMALA." *Schiller s. n.* (holotype: W).

Distribution: Mexico.

Barkeria uniflora (Llave & Lex.) Dressler & Halbinger, Orquidea (Méx.) 6:253. 1977; *Pachyphyllum uniflorum* Llave & Lex., Nov. Veg. Descr. Fasc. II, Orch. Opusc. 4:25. 1825. TYPE: MEXICO. Irapa (preserved?).

synonym: *Barkeria elegans* Knowles & Westc., Floral Cab. 2:7, t. 49. 1838; *Epidendrum elegans* (Knowles & Westc.) Reichb.f., Ann. Bot. Syst. 6:374. 1862. LECTOTYPE (designated by Christenson, 1996): t. 49, loc. cit.

synonym: *Barkeria elegans* var. *nobilior* Reichb.f., Gard. Chron. 1:234. 1886. TYPE: MEXICO. (holotype: W?).

Distribution: Mexico.

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Barkeria whartoniana (C. Schweinf.) Soto Arenas, Orquidea(Méx.) 13(1-2):240. 1994; *Epidendrum whartonianum* C. Schweinf., *Amer. Orchid Soc. Bull.* 17(5):240. 1948. TYPE: MEXICO. Oaxaca, *MacDougall s. n.* (holotype: AMES).

Distribution: Mexico (Oaxaca).

Excluded Species

Barkeria pentadactyla (Reichb.f.) Hemsl., Gard. Chron. 1:235. 1879; *Epidendrum pentadactylum* Reichb.f., Bonplandia 2:89. 1854. TYPE: NICARAGUA. Iraru, Oersted s. n. (holotype: W). = ***Oerstedella pentadactyla*** (Reichf.f.) (Reichb.f.) Hagsater.

Eric A. Christenson
1646 Oak Street
Sarasota, Florida 34236, U.S.A.

Is it a Species or a Hybrid?

By Brian Milligan

It's easy to distinguish between species and hybrids if the rules of modern nomenclature are followed, because the hybrid grex will begin with a capital letter, while the species epithet will not. Even if you've never heard of these particular orchids, it's easy to see that *Cymbidium* Jubilation must be a hybrid, while *Cymbidium tracyanum* is a species. You will also note that the species epithet has a Latin suffix, while the hybrid grex does not. For the last fifty years or more, hybrid names with Latin endings have been rejected by the Royal Horticultural Society. This makes it easy for orchid judges to differentiate between species and hybrids by their names, a necessary step so that they can be judged in their correct classes, even if the above convention is ignored.

Unfortunately, earlier registration authorities made no such stipulation, and as a consequence many early hybrids (like the species from which they were bred) have names with Latin endings. *Odontoglossum* Ardentissimum, *Cymbidium* Alexanderi and *Paphiopedilum* Harrisianum are examples. It's still easy to recognise them as hybrids because each grex name begins with a capital letter. But what happens if the whole name is printed in block letters, as some exhibitors occasionally do on their plant labels and display cards?

Orchid judges must therefore be able to recognise the early hybrids from their names alone (not by the way they're written or typed), which requires a fair test of memory. Could you do it? The names of the following orchids have been typed in capitals. See if you know which are species and which are hybrids:

1. PAPHIOPEDILUM CHAMBERLAINIANUM
2. PAPHIOPEDILUM GOULTENIANUM
3. PHRAGMIPEDIUM CAUDATUM
4. PHRAGMIPEDIUM CALURUM
5. DENDROBIUM APHYLLUM
6. DENDROBIUM ADASTRA
7. MASDEVALLIA DAVISII
8. MASDEVALLIA FALCATA
9. CATTLEYA LABIATA
10. CATTLEYA PORTIATA

How did you go? All those with odd numbers are species, while those with even numbers are hybrids. If you got all of them right, you have done exceedingly well! But there are still many "older" names around today that still confuse the experts!

Brian Milligan
North Balwyn, Victoria

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AOR 111

Aspley Orchid Society Summer Orchid Show

The Aspley Orchid Society is conducting its Summer Orchid Show "Celebrating Valentine's Day" on the weekend of 12th and 13th February, 2005. The venue is the Auditorium, Brisbane Botanic Gardens at Mt. Coot-tha. Doors will be open from 9.00am to 4.00pm daily. Benching of plants will be between 2.00pm and 7.30pm on Friday 11th February, 2005.

This is your chance to see all those summer flowering orchids on display because in the Brisbane region this is the only show from November until mid-March.

So come along and enjoy the riot of colour and the smorgasbord of scents from a wide variety of genera and help us celebrate Valentine's Day. Potting demonstrations and cultural advice by senior members of our society will be special features. A wide variety of plants and floral art will be available for sale.

For further information please contact Jan Patterson, (07) 3269 7537.

WA Orchid Spectacular and Conference 2005

The planning for the WA Orchid Spectacular and Conference 2005 is moving ahead rapidly and the event is now less than a year away. My how time flies. September is a great time to be in Western Australia as the wildflower season is at it's peak. The Kings Park Wildflower Festival follows the Conference later in the month and will be a huge attraction.

A tour is being planned, of the Kings Park facilities, including a visit to their laboratories, which are world class, and then on to see Western Australian native orchids in their habitats in bush surrounding the Perth Metro area.

The Lecture Program is now being finalised with overseas speakers who are at the top in their fields, from locations as far apart as the USA, Madagascar, Taiwan and Thailand, as well as a group of quality Australian orchid professionals. They will cover all the major genera plus some specialised orchid subjects that have been rarely discussed by experts in this country, such as Madagascan orchids, Chinese and Vietnamese Paphiopedilums and the latest on Western Australian terrestrials from Kings Park.

This will be your last chance to get in on the ground floor with our Early Bird Registration, which expires at the end of December. At just $65 this represents great value for money, and as Christmas is on it's way, why not give someone you love a Christmas present with a real difference. Registration forms are available at our web site www.orchidswa.org or from WAOS 2005 Secretary, PO Box 1303 Mandurah WA 6210

The Conference runs from the 13th to 19th

September 2005 and is open to the public between the 15th and 18th inclusive.

See you there. ■

Tony Watkinson
Email: emntee@iinet.net.au

Orchid Weekend Workshop in Canberra 19-20 March 2005

The Orchid Society of Canberra is hosting an Orchid Weekend Workshop in Canberra over the weekend of 19/20 March 2005 at the Sundown Motel Resort in Narrabundah, in Canberra.

Clive Halls of Mt Beenak Orchids and Wayne Turville of The Australian Orchid Nursery will be our guest presenters. Clive Halls sells an enormous range of cool-growing orchids, and Wayne specialises in Australian natives. In addition to speaking on the trends in hybridising and on orchid culture, Clive and Wayne will have many beautiful orchids for sale.

The format will be morning and afternoon presentations on Saturday, starting about 10 am, and a morning session on Sunday, and closing with lunch on Sunday. Teas and lunches are included in the registration fee of $50. Dinner on Saturday evening at the Sundown Motel Bistro will be at the expense of participants.

Although the Workshop is still many months away, you should be aware that the weekend concerned is the Canberra Day long weekend and so accommodation may be in short supply. Those planning to join us for the weekend should arrange their accommodation at an early date.

Full details (including accommodation suggestions) and registration forms are available on the OSC website: http://www.geocities.com/RainForest/Vines/7040/ or from me on (02) 6297 1427. ■

Bob Bush
President, Orchid Society of Canberra

Texas Orchid Grower Sentenced for Smuggling Protected Peruvian Orchids

October 6th 2004. Marcos Daniel Jiménez, United States Attorney for the Southern District of Florida; Thomas Sansonetti, Assistant Attorney General, for the Justice Department's Environment and Natural Resources Division, announced today that defendant, George Norris, a resident of Spring, Texas, was sentenced to seventeen (17) months' imprisonment and two (2) years of supervised release at a hearing in Miami, Florida, Federal District Court today in connection with a conspiracy to smuggle into the United States protected orchid specimens, including specimens of the genus *Phragmipedium*, commonly known as Tropical lady's slipper orchids. All species of orchid are protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), a treaty to which the United States and Peru, along with over 160 other nations, are parties. The United States implements CITES through the Endangered Species Act. Norris previously pleaded guilty to seven (7) criminal charges related to the smuggling of orchid specimens into the United States for sale and admitted to a forfeiture provision in the Indictment which asserts that the orchids or their substitute value is properly forfeitable as part of the action.

United States District Judge Patricia Seitz, who imposed sentence in the case found that Norris was unable to pay a fine, which under the charges could have been the greater of $250,000 or twice the gain or loss from his relevant conduct, for each of the seven Counts. Norris' co-defendant, Manuel Arias Silva of Lima, Peru, previously entered guilty pleas to two counts of the Indictment and received a sentence of twenty-one (21) months' imprisonment, three (3) years supervised release and a $5,000 fine.

According to the indictment and statements in Court, Arias made multiple shipments of orchids to his co-conspirator, Norris in Spring, Texas, between January of 1999 and October of 2003. Arias would obtain a CITES permit for the shipments from Peruvian authorities, with whom he had a long-standing relationship, authorizing the export of certain numbers of artificially propagated specimens of particular species of orchids. Arias would then ship specimens of orchids not included on the CITES permit. Norris and Arias admitted in their pleas that to conceal the illegal activity they would falsely label the protected species as a species included on the permit. Arias would provide Norris a code or "key" that would provide a means for deciphering the false labels and identifying the true species of the orchids. One shipment in February of 2003 included some 1,145 specimens, of which approximately 490 were of species not authorized for export by the accompanying CITES permit. Norris and Arias admitted by pleading guilty that they used invalid permits for the shipments and falsely labeled many of the plants to cover up the lack of a valid permit. Three of the shipments mentioned in Court were valued at more than $45,000, based on the actual sales records seized during the search of Norris' business in Texas.

Mr. Jiménez commended the investigative efforts of the United States Fish and Wildlife Service, the Department of Homeland Security, Customs and Border Protection Service, and the Department of Agriculture. The case was prosecuted by Assistant United States Attorney Thomas Watts-Fitzgerald and the Environmental Crimes and Natural Resources Section of the Department of Justice. ■

Carlos B. Castillo,
Special Counsel for Public Affairs

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AOR 202

New Orchid Hybrids

July – September 2004 REGISTRATIONS

Supplied by the Royal Horticultural Society as International Cultivar Registration Authority for Orchid Hybrids

NAME	PARENTAGE	REGISTERED BY
		(O/U Originator unknown)
ADAMARA [YAMADAARA]		
Yuan Nan Hong	*Epi. atropurpureum* x *Blc.* Phinyophan Boy	V.Boonyuenvetwat (D.Hongseanyatum)
ANGRAECUM		
Longilena	*Angcm. longicalcar* x *Angcm. magdalenae*	F.Hillerman
ANGULOCASTE		
Draco	*Angcst.* Jupiter x *Lyc. crinita*	J.Blowers
ASCOCENDA		
Aleksander Kwasniewski	*Ascda.* Fuchs Gold x *Ascda.* Memoria Katherine Hatos	Singapore Bot.Gdns
Alice's Stewart	*Ascda.* Suksamran Spots x *V.* Rasri-prai	Alice's Orch.
Christopher Thong	*V.* Walter F. Dillingham x *Asctm. miniatum*	Thong
Chunika	*Ascda.* Stephanie Chun x *Ascda.* Erika Reuter	W.H.Starke(O/U)
Elaine Nelson	*Ascda.* Tommy Chia x *Ascda.* Peggy's Heaven	Mrs E.Nelson(Laurel Orch.)
Hatos Sunshine	*Ascda.* Fuchs Star x *V. tessellata*	D.Grove(R.Hatos)
Istana	*Ascda.* Kwa Geok Choo x *Ascda.* Fuchs Harvest Moon	Singapore Bot.Gdns
Iwasaki Yip	*V.* Memoria T. Iwasaki x *Ascda.* Yip Sum Wah	G.Monnier(O/U)
June Starke	*Ascda.* William Starke x *V.* [*Eua.*] *sanderiana*	W.H.Starke(Miyamoto)
Khaw Phaik Suan	*V.* Emma van Deventer x *Ascda.* Danny Low	Wong Thong Leong (Lum Chin Orch.)
Kulwadee Spot	*Ascda.* Suksamran Gold x *Ascda.* Guo Chia Long	Sujit Sutthawas
Peggy's Heaven	*Ascda.* Peggy Foo x *Ascda.* Blue Heaven	Mrs E.Nelson(O/U)
Red Wong Manee	*Ascda.* Yip Sum Wah x *V. coerulea* Pink Flowered Group	Chitswang(Maneetarn)
Sonja's Delight	*Ascda.* Fiftieth State Beauty x *Asctm.* Sagarik Gold	Ching Kwee Sin
Web of Gold	*V. stangeana* x *Ascda.* Iwasaki Yip	G.Monnier
William Starke	*Ascda.* Stephanie Chun x *Ascda.* Erika Reuter	W.H.Starke(Miyamoto)
BRASSOCATTLEYA		
Brazilian Rose	*Bc.* Candy Rose x *C.* Walkerinter	Suwada Orch.
Yuan Nan Love	*C.* Hawaiian Wedding Song x *Bc.* Cynthia	V.Boonyuenvetwat
BRASSOLAELIA		
Meryt-aten	*L. dawsonii* x *B.* [*Rl.*] *glauca*	R.M.Capen(O/U)
BRASSOLAELIOCATTLEYA		
Aketie	*Bc.* Akebono x *Lc.* Flirtie	H.Furumizo(O/U)
Amazon Andean Snow	*Blc.* Good News x *Lc.* Melody Fair	C.Wenzel
Amazon Bouquet	*Blc.* Love Sound x *C.* Princess Bells	C.Wenzel
Amazon Gold Mountain	*Blc.* Love Sound x *Blc.* Chyong Guu Chaffinch	C.Wenzel
Amazon Orchids	*C.* Angelwalker x *Blc.* Doctor Damasio	C.Wenzel
Amazon Superstar	*Lc.* Crepe Suzette x *Blc.* Goldenzelle	C.Wenzel
Anna Saeki	*Blc.* Orglade's Crescent x *Blc.* Sweet Anniversary	Akatsuka Orch.Gdns.
Annette Watanabe	*Blc.* Iger's Sweet Revenge x *Lc.* Drumbeat	Akatsuka Orch.Gdns.
Buffy Mackay	*Lc.* Angel Heart x *Bc.* Memoria Ruth Moon	R.Shoesmith
Cosmo-Warnzelle	*C. warneri* x *Blc.* Goldenzelle	Kokusai
Dawn Frey	*Blc.* Marjorie Frey x *Blc.* Dawn Angela	W.Otaguro(O/U)
Doreen's Pride	*Lc.* Drumbeat x *Blc.* Dorothy Gorton	Don Massey
Encuentro Feliz	*Blc.* Owen Holmes x *Blc.* Golden Embers	R.Sobrino
Express Passion	*L. anceps* x *Blc.* Satomi	Suwada Orch.
Handsome	*C.* Priscilla Ward x *Blc.* Memoria Helen Brown	H.Nagao
Innocent Heart	*Bc.* Pastoral x *Blc.* Lady's Favorite	Suwada Orch.
Intelligent	*L. anceps* x *Blc.* Goldenzelle	Suwada Orch.
Lady Wakasugi	*Blc.* Summer Lady x *Blc.* Amy Wakasugi	Suwada Orch.
Mareeba Thunder	*Lc.* Okarche x *Blc.* Memoria Susan Hawkins	E.J.Allen
Margaret Thatcher	*Lc.* Princess Margaret x *Blc.* Summer Bay	A.Chadwick(Lenette)
Memoria Giovanni Cassiraghi	*C. leopoldii* x *Blc.* Living Legend	L.Oliveau
Memoria Tegan Currier	*Blc.* Inge's Choice x *Blc.* Edisto	E.J.Allen
Merri Glen	*C. leopoldii* x *Blc.* Glorious	Stewart Inc.(M.Spencer)
Nobuko Obara's Memory	*Blc.* Dawn Frey x *Lc.* Memoria Isami Doi	W.Otaguro
Rain Dance	*C.* Seagulls Black Knight x *Blc.* Pali Polka Dot	F.Fordyce
Red Passion	*Lc.* Mary Ellen Carter x *Blc.* Owen Holmes	Suwada Orch.(Carter & Holmes)
Saengsubin	*Blc.* Haadyai Delight x *Blc.* Kanueng-Nid	S.Meesangnil
Seto Beat	*Lc.* Drumbeat x *Blc.* Strathview	Y.Shiwaku(Fuji Nurs.)
Shinfong Castle	*Blc.* Chunyeah x *Blc.* Toshie Aoki	W-C.Hung
Spicy Gold	*Bc.* Binosa x *L. aurea*	Richella
Sueño en Vuelo	*Lc.* C. G. Roebling x *Bc.* Niña Hermosa	R.Sobrino
Sweet Roon	*Blc.* Sweet Anniversary x *Blc.* Herons Roon	Fuji Nurs.
Tenue Caricia	*Bc.* Cynthia x *Blc.* Niña del Paraíso	R.Sobrino
Thai Girl	*C. bowringiana* x *Blc.* Aketie	H.Furumizo
Tzeng-Wen Dragon	*Lc.* Tokyo Magic x *Blc.* Chunyeah	Ching-Tien Wong
BRASSOLAELIOCATTLEYA (continued)		
Vicky Magic	*Blc.* Vicky Gold x *C. violacea*	Suwada Orch.
Village Chief Flower	*Blc.* Liu's Joyance x *Blc.* Tzeng-Wen Beauty	Chih-Cheng Chen
Village Chief Gossip	*Blc.* Taiwan Ruby x *Blc.* Tzeng-Wen Beauty	Chih-Cheng Chen
Village Chief Grower	*Blc.* Chunyeah x *Lc.* Chine	Chih-Cheng Chen
Village Chief Pace	*Blc.* Ahualoa x *Blc.* Tzeng-Wen Beauty	Chih-Cheng Chen
Village Chief Paramour	*Blc.* Taiwan Beauty Girl x *Lc.* Tainan City	Chih-Cheng Chen
Village Chief Taiwan	*Blc.* Liu's Joyance x *Blc.* Shinfong Luohyang	Chih-Cheng Chen
Village Chief Welldoer	*Blc.* Taiwan Ruby x *Blc.* Shinfong Luohyang	Chih-Cheng Chen
Village Chief Wench	*Lc.* Tainan City x *Blc.* King of Taiwan	Chih-Cheng Chen
Wan Luan Fantasy	*Blc.* Chen's Ruby x *Lc.* Irene Finney	Chen Chu Chen
Xmas	*Blc.* Norman's Bay x *Lc.* Walter Derrin	J.Rehfield
Yosooi	*Blc.* Polymela x *C. trianae*	Suwada Orch.(I.Tsunoda)
BULBOPHYLLUM		
Rungsan Viraphandhu	*Bulb. annandalei* x *Bulb.* [*Mg.*] *fascinator* [*fascinator*]	C.Urthamapimuk(Sakdisri)
CATASETUM		
Sweet Spice	*Ctsm.* Alexis Pardo x *Ctsm.* Kay Lowe	F.Clarke(O/U)
CATCYLAELIA		
Dolores Two	*Lc.* Jean-ne Lorraine x *E.* [*Epi.*] *ambigua*	Mr/Mrs W.Osment
CATTLEYA		
Amazon Blues	*C.* Whitei x *C. walkeriana*	C.Wenzel
Amazon Flame	*C.* Belzaar x *C. nobilior*	C.Wenzel
Betty Lynn	*C. bicolor* x *C.* Lebrida	A.Gaupel(O/U)
Black Wonder	*C.* Larry's Small Wonder x *C.* Chocolate Drop	L.Aotaki(O/U)
Castson	*C.* Forecaster x *C. harrisoniana* [*harrisoniae*]	R.Pabst(O/U)
Comwhite	*C. intermedia* x *C. harrisoniana* [*harrisoniae*]	Rayridge(F.J.Bergman)
Doktor Doeckel	*C.* Enid Acland x *C. dolosa*	H.Baggeler
Enid Acland	*C. aclandiae* x *C.* Enid	H.Baggeler(O/U)
Fantasia Isleña	*C.* Chocolate Drop x *C. leopoldii*	R.Sobrino
Fi-Fi Sun	*C.* July Sun x *C.* Carl Hausermann	E.Finney
Florindo Tabacchi	*C. labiata* x *C. nobilior*	N.Suzuki
Gerry's Hope	*C.* Prospector x *C.* Quest Cutter	G.F.Edwards
Gold Lips	*C.* Triumphans x *C. harrisoniana* [*harrisoniae*]	J.Y.Nitta
JEM's Super Velutin	*C. velutina* x *C. schofieldiana*	G.Monnier
July Sun	*C.* Sunrise Chalet x *C.* Barbara Billingsley	E.Finney(O/U)
Larry's Small Wonder	*C. amethystoglossa* x *C.* Barbara Sander	L.Aotaki(O/U)
Lebrida	*C.* Leda x *C.* Hybrida	A.Gaupel(O/U)
Mini-green	*C. forbesii* x *C. leopoldii*	William Kirch
Natsukoyuki	*C.* Angelwalker x *C.* Hawaiian Wedding Song	N.Taki(Yoshitaka Yamamoto)
Oliva Kuser	*C.* Stella Elenewski x *C.* Pilila Comacho	Elenewski
Quest Cutter	*C.* Cuesta x *C.* Calcutta	G.F.Edwards(O/U)
Snow Field	*C.* Spring Climax x *C.* Picasso	T.Taguchi(Rod McLellan Co.)
CATTLEYCHEA		
Moonmoth	*Psh.* [*Ech.*] *mariae* x *C. harrisoniana* [*harrisoniae*]	Wyld Court
CATTLEYTONIA		
Maui Pride	*C. leopoldii* x *Bro. sanguinea*	R.Yagi
Red Rum	*Ctna.* Jamaica Red x *C.* Penny Kuroda	E.J.Hildrum(Brookside Ghs.)
CATYCLIA		
Leaf Hopper	*Cty.* [*Epc.*] El Hatillo x *E.* [*Epi.*] *tampensis*	H & R
Manoa	*C. harrisoniana* [*harrisoniae*] x *E.* [*Epi.*] *cordigera* [*cordigerum*]	W.W.G.Moir(T.Kazumura)
Tender Leaf	*C. leopoldii* x *E.* [*Epi.*] *tampensis*	Stewart Inc.
CHRISANDA		
Chao Praya Emerald	*Chri. vietnamica* x *V. tessellata*	Chao Praya Orch.
CLOWESETUM		
JEM's Grand Cascade	*Cl.* [*Ctsm.*] *glaucoglossa* [*glaucoglossum*] ¶ x *Ctsm.* Orchidglade	G.Monnier
JEM's Speckled Russ	*Cl. russelliana* x *Ctsm. denticulatum*	G.Monnier
CYMBIDIUM		
Angelico	*Cym.* Lucky Rainbow x *Cym.* Asteroid	Kawano Mericlone
Auraki	*Cym.* Auriga x *Cym.* Coraki	P.Simpson(O/U)
Baltic Jewel	*Cym.* Finlandia x *Cym.* Dusty King	Rudvalis
Beach Ballad	*Cym.* Herbie Poole x *Cym.* Anna Szabo	New Horizon Orch.(A.Easton)
Bronze Idol	*Cym.* Cronulla x *Cym.* Red Beauty	R&N.Smith(R.Pollock)
Burning Flame	*Cym.* Huckleberry Mountain x *Cym.* Cora Paddison	R&N.Smith(A.Easton)
Carol Channing	*Cym.* Dolly x *Cym.* Tethys	New Horizon Orch.(A.Easton)
Charles Delight	*Cym.* Wallara x *Cym.* Auraki	P.Simpson
Christmas Wish	*Cym.* Cherry Cola x *Cym.* Esk Claret	New Horizon Orch.(A.Easton)
Clear Voice	*Cym.* Sweet Emotion x *Cym.* All My Love	Bio-U
Crystal Heart	*Cym.* Enrouler x *Cym.* Great Katy	M.Kawano

NAME	PARENTAGE	REGISTERED BY
CYMBIDIUM (continued)		
Eastern Beach	*Cym. sinense* x *Cym.* Enzan Spring	Mukoyama
Eastern Fantasy	*Cym.* Eastern Bunny x *Cym.* Khai Loving Fantasy	Mukoyama
Eau de Toilette	*Cym. goeringii* x *Cym.* Hiroshima Golden Cup	Bio-U
Enid's Mont	*Cym.* Enid Haupt x *Cym.* Westmont	C.Ramage(O/U)
Enrouler	*Cym.* Asteroid x *Cym.* Great Flower	Kawano Mericlone
Enzan Balcony	*Cym.* President Wilson x *Cym.* Vanguard	Mukoyama
Enzan Prince	*Cym.* Enzan Aniston x *Cym.* Golden Anniversary	Mukoyama
Enzan Princess	*Cym.* Kusuda Bay x *Cym.* Enzan Cricket	Mukoyama
Eri Iwasaki	*Cym.* Mad Doctor x *Cym.* Richard Tauber	S.Winward(Glen.O.Acres)
Golden Delight	*Cym.* Enzan Delight x *Cym.* Hiroshima Golden Cup	Mukoyama
Grassland	*Cym.* Miracle Century x *Cym.* Twilight Moon	Bio-U
Gready's Pink Champagne	*Cym.* Winter Fair x *Cym.* Iris Gillson	B.Gready(A.R.Bryant)
Green Lantern	*Cym.* Royale Fare x *Cym.* Joker	R&N.Smith
Harriet Ramage	*Cym.* Enid's Mont x *Cym.* Pearl-Easter	C.Declerck
Heart Song	*Cym.* Enzan Spring x *Cym.* Angelico	M.Kawano
Honey Heart	*Cym.* Pink Veil x *Cym.* Enrouler	M.Kawano
Ian Reid	*Cym.* Cariga x *Cym.* Kabuki Legend	New Horizon Orch.(A.Easton)
Ida Angelot	*Cym.* White Cloud x *Cym.* Balkis	Miller Coll.
Irene Carr	*Cym.* Carisona x *Cym.* Irene	R.T.J.Gilliland(O/U)
Jack Pearlstein	*Cym.* Pearly Pepper x *Cym.* Rolling Stone	New Horizon Orch.(A.Easton)
Jessie Mirna	*Cym.* Mazatlan x *Cym.* Irene Carr	R.T.J.Gilliland(J.& V.Paterson)
Kiwi Connection	*Cym.* Red Beauty x *Cym.* Last Tango	R.Crabb(R.Tucker)
Madame Butterfly	*Cym. ensifolium* x *Cym.* Scorpio	K.Andrew O.(Burnham Nurs.)
Magic Heart	*Cym.* Raspberry x *Cym.* Red Gloria	M.Kawano
Memoria David Sander	*Cym. mastersii* x *Cym. insigne*	New Horizon Orch.(A.Easton)
Memoria J. D. Garretson	*Cym.* Lady Lucy x *Cym.* Carefree Excell	Dr/Mrs R.Cosgrove
Merimbula Angel	*Cym.* Gilded Angel x *Cym.* Tracey Reddaway	B.Blackley(O/U)
Merimbula Odyssey	*Cym.* Palace Court x *Cym.* White Cloud	B.Blackley
Merimbula Sands	*Cym.* Jinjerra x *Cym.* Vivacious	B.Blackley
Mighty Voice	*Cym.* Paul Robeson x *Cym.* Mighty Mouse	New Horizon Orch.(A.Easton)
Milky Queen	*Cym.* Enzan Spring x *Cym.* Sweet Face	M.Kawano
Miss Century	*Cym.* Great Katy x *Cym.* Seaside	Bio-U
Moon Phase	*Cym.* Yellow Candy x *Cym.* Morning Moon	Bio-U
Native Gold	*Cym.* Ygraine x *Cym. canaliculatum*	R&N.Smith(O/U)
Orange Crush	*Cym.* Atlantic Crossing x *Cym.* Autumn Crisp	R&N.Smith(A.Easton)
Orchid Answers Yowie	*Cym.* Yowie Flame x *Cym.* Yowie Rose	Orch. Answers(Bryants)
Parish Doll	*Cym.* Dolly x *Cym. parishii*	New Horizon Orch.(A.Easton)
Parish Elf	*Cym.* Golden Elf x *Cym. parishii*	New Horizon Orch.(A.Easton)
Pure Flower	*Cym.* Enzan Spring x *Cym.* Enrouler	M.Kawano
Rising Sun	*Cym.* Esmeralda x *Cym.* Coraki	New Horizon Orch.(A.Easton)
Royal Palace	*Cym.* Kusuda Bay x *Cym.* Tsurugi	Mukoyama
Ruby Doll	*Cym.* Peteete Doll x *Cym.* Ruby Eyes	New Horizon Orch.(A.Easton)
Scott's Blush	*Cym.* Scott's Sunrise x *Cym.* Sleeping Beauty	A.Canala(G.Heylen)
Silky Queen	*Cym.* Kiss Me x *Cym.* Early White	Bio-U
Sims Vision	*Cym.* Hazel Tyers x *Cym.* Real Vision	Sims Orch.
Sinful Sydney	*Cym.* Sweet Spring x *Cym. erythrostylum*	New Horizon Orch.(A.Easton)
Sir Keith	*Cym.* Amesbury x *Cym.* Kiwi Boy	R.Tucker
Sir Kur	*Cym.* Sirius x *Cym.* Kurun	Kembla(O/U)
Sleepy Promise	*Cym.* Sleeping Beauty x *Cym.* Iris Gillson	Valley Orchids(R.Vandyke)
Sue Doig	*Cym.* Sue x *Cym.* Prettipink	New Horizon Orch.(A.Easton)
Sunrise World	*Cym.* Yellow Candy x *Cym.* Hiroshima Golden Cup	Bio-U
Swamp Sashay	*Cym.* Everglades x *Cym.* Minuet	New Horizon Orch.(A.Easton)
Sweet Face	*Cym.* Asteroid x *Cym.* Sarasate	Kawano Mericlone
Sweet Roman	*Cym.* Great Katy x *Cym.* Sweet Location	Bio-U
Sylvan Sprite	*Cym.* Sir Kur x *Cym.* Sylvania	Kembla
Tintana	*Cym.* Sylvan Tints x *Cym.* Earlyana	W.& A.Gowling
Valley Olympic	*Cym.* Valley Winter x *Cym.* President Gorbachev	Valley Orchids
Vanity Fair	*Cym.* Poetic Winter x *Cym.* Joan's Charisma	R.Battye(Bryants)
Via Mar Dawson	*Cym.* Via Mar Tranquila x *Cym.* Peter Dawson	K.Okamoto(A.Easton)
Vivien Clarke	*Cym.* Kangar x *Cym.* Ann Green	P.Nash(O/U)
White Cloud	*Cym.* Mayleen x *Cym.* Snow Sprite	B.Blackley(O/U)
Winning Smile	*Cym.* Happy Memory x *Cym.* Lucky Rainbow	Bio-U
Yamanashi Fire	*Cym.* Lady Spring x *Cym.* Sensational Vintage	Mukoyama(A.Easton)
Yellow Delight	*Cym.* Pure Love x *Cym.* Del's Delight	R.Crabb(R.Tucker)
Yellow Eagle	*Cym. madidum* x *Cym.* Eagle	R&N.Smith(O/U)
DENDROBIUM		
Albert's Reign	*Den.* Rene Chandraratne x *Den. antennatum* [*dalbertisii*]	R.B.G.Peradeniya(O/U)
Alice's Kevin	*Den.* Jaydee Jim x *Den.* Beranga	Alice's Orch.(K.Owens)
Alice's Marelyn	*Den.* Red Toro x *Den. gouldii*	Alice's Orch.(O/U)
Alice's Roberto	*Den.* Anching Lubag x *Den. cochliodes*	Alice's Orch.(O/U)
Alice's Thomas	*Den.* Queen Cobra x *Den. tangerinum*	Alice's Orch.(O/U)
Allyn Beauty	*Den.* Laura Sladden x *Den. bigibbum*	V.& N.Jupp
Allyn Surprise	*Den.* Loo Meow Lan x *Den. bigibbum*	V.& N.Jupp
Amitabh Bachchan	*Den.* Nilda Patricia Zedillo x *Den.* Dandy Dame [Claudia]	Singapore Bot.Gdns
Anna Tham	*Den.* Junko Pink x *Den.* Masako Taki	MGSAA(MGS)
Australian Idol	*Den. speciosum* x *Den.* Gracious Cascades	Australian O.N.
DENDROBIUM (continued)		
Australian Star	*Den. speciosum* x *Den.* Mario	Australian O.N.
Bae Yong Jun	*Den.* Jenny Shipley x *Den. lasianthera* [*ostrinoglossum*]	Singapore Bot.Gdns
Batavia Beauty	*Den.* Bertha Chong x *Den. nindii*	M.H.Cahyanto
Batavia Blues	*Den.* Tosons x *Den. nindii*	M.H.Cahyanto
Batavia City	*Den.* Bob Ching x *Den. bicaudatum* [*minax*]	M.H.Cahyanto
Batavia Dancer	*Den.* Ly x *Den. nindii*	M.H.Cahyanto
Batavia Flame	*Den.* Leahi Beauty x *Den. discolor* [*undulatum*]	M.H.Cahyanto
Batavia Lips	*Den.* Husmadi x *Den.* Burana Sundae	M.H.Cahyanto
Batavia Night	*Den.* Bob Ching x *Den. discolor* [*undulatum*]	M.H.Cahyanto
Batavia Twist	*Den. cochliodes* x *Den.* Wanda A. Leidin	M.H.Cahyanto
Batavia Wine	*Den.* Leahi Beauty x *Den. leporinum*	M.H.Cahyanto
Bellinger Vista	*Den.* Glitter x *Den.* Vintage	N.Mitchell
Bellinger White	*Den.* Intice x *Den.* Visheen	N.Mitchell
Bill Tierney	*Den.* Stratiotan x *Den. helix*	K.MacPherson(O/U)
Carly Fiorina	*Den.* Singa Rose x *Den. bigibbum*	Singapore Bot.Gdns
Charles Ho	*Den.* Tuang Pink x *Den.* Elizabeth	Singapore Bot.Gdns
Charles Valmadre	*Den.* Madame Udomsri x *Den.* Mae-Klong River	Cairns Orch.
Checkmate	*Den.* Second Love x *Den.* Lovely Virgin	Bio-U
Chitra Rajaram	*Den.* Neha x *Den.* Chao Praya Gem	Singapore Bot.Gdns
Chuan n Ying	*Den.* Chao Praya Gem x *Den.* Masako Taki	B.Hidajat(MGS)
Dominic Ng	*Den.* Penang Little Magic x *Den.* Ghafar Baba	Dominic Ng
Emerentia	*Den.* Apple Green x *Den.* Mary Trowse	Koh Keng Hoe
Faisal El-Fayez	*Den.* Masahito and Hanako x *Den. phalaenopsis*	Singapore Bot.Gdns
Fine Ford	*Den.* Bedford x *Den. affine*	Hausermann(O/U)
Fine Motion	*Den.* Comet King x *Den.* Future World	Bio-U
First Impression	*Den.* Benchamin x *Den.* Future World	Bio-U
Golden Bull	*Den.* Taurus x *Den.* Gold Flush	R.B.G.Peradeniya(O/U)
Great Wave	*Den.* Hamana Lake x *Den.* Comet King	Bio-U
Half Moon Bay	*Den.* Louisae x *Den. bigibbum*	Limberlost
Hausermann's Moondrop	*Den.* Theodore Takiguchi x *Den.* Fine Ford	Hausermann
Helen Ng	*Den.* Amin [Schulan] x *Den.* Thurston	Dominic Ng(S'pore Orchids)
Hickam Show	*Den.* Hickam Deb x *Den.* Autumn Show	Cairns Orch.(O/U)
Hsinying Cruenzuki	*Den. cruentum* x *Den. suzukii*	Ching Hua
Hsinying Sumidible	*Den.* Formidible x *Den. suzukii*	Ching Hua
Hsinying Susan	*Den. formosum* x *Den. suzukii*	Ching Hua
Hsinying Tobazuki	*Den. suzukii* x *Den. tobaense*	Ching Hua
Jody Kirtland	*Den.* Masako Taki x *Den.* Chao Praya Gem	C-M.Kirtland(MGS)
Joyous	*Den.* Thwaitesiae x *Den.* Plumptonense	N.E.Noble
Katherine Anne	*Den.* Nora Valmadre x *Den.* Charles Valmadre	Cairns Orch.
Kay's Delight	*Den.* Julie Tydd x *Den.* Bellinger Beauty	N.Mitchell
Khem-cho	*Den.* American Beauty x *Den. phalaenopsis*	R.B.G.Peradeniya(O/U)
Lakkirula	*Den.* Golden Bull x *Den.* Cheong Chee Yon	R.B.G.Peradeniya
Lakras	*Den.* Cheryl Cummins x *Den.* Khem-cho	R.B.G.Peradeniya
Lakshanthi	*Den.* Albert's Reign x *Den.* Cheong Chee Yon	R.B.G.Peradeniya
Liak Teng Lit	*Den.* Becky Purves x *Den.* Amytan	Singapore Bot.Gdns
Lum Chin's Tunku Irinah	*Den.* Seah Koko x *Den.* Lim Chong Min	E.Trevor(Lum Chin Orch.)
Lyda Bell Howe	*Den. phalaenopsis* x *Den.* Fine Ford	D.Howe
Melinda Bishop's Prize	*Den.* Theodore Takiguchi x *Den.* Nancy Longton	E.Bishop(H.Schnurstein)
Memoria Genevieve T. W. Tan	*Den.* May Neal x *Den.* Water Soldier	Thong
Michael Jeffery	*Den.* Singa Beauty x *Den. gouldii*	Singapore Bot.Gdns
Mini Janice	*Den.* Malihini x *Den.* Janice Tanaka	Chan Ah Peng(O/U)
Nora Valmadre	*Den.* Hickam Show x *Den.* D'Bush Classic	Cairns Orch.
Pang Kin Keong	*Den.* Singa Mas x *Den.* Burana Green	Singapore Bot.Gdns
Raleigh	*Den.* Bellinger Surprise x *Den.* Visheen	N.Mitchell
Ricardo Lagos	*Den.* C. K. Ai x *Den.* Lady Hochoy	Singapore Bot.Gdns
S. S. Ng	*Den.* Mini Janice x *Den. nindii*	Chan Ah Peng(O/U)
Sheng Zi Se	*Den.* Fran's Twist x *Den. bigibbum*	M.K.Lam(O/U)
Silver Wings	*Den. johnsoniae* x *Den. eximium*	H & R
Simon Tay	*Den.* Masako Kotaishi Hidenka x *Den. phalaenopsis*	Singapore Bot.Gdns
Singa Beauty	*Den.* Premier Yusof x *Den.* Temasek	Singapore Bot.Gdns
Sophia Blackmore	*Den.* Lucian Pink x *Den.* Chao Praya Gem	MGSAA(MGS)
Sunup	*Den.* Glitter x *Den.* Jesmond Charm	N.Mitchell
Tay Poh Imm	*Den.* Mother Teresa x *Den.* Chao Praya Gem	K.L.Quek(MGS)
Toro's Lassie	*Den. lasianthera* [*ostrinoglossum*] x *Den.* Red Toro	A.Hughes(N.J.Coffinson)
Wasyl	*Den. speciosum* x *Den.* Edda	D.Cleal(D.&J.Moss)
Water Soldier	*Den. arcuatum* x *Den. stratiotes*	Thong(O/U)
Yuan Nan Twist	*Den.* Margaret Thatcher x *Den. tangerinum*	V.Boonyuenvetwat
DEVEREUXARA		
Hawaiian Cassandra	*Dvra.* Hawaiian Delight x *Phal.* Cassandra	G.J.McKay(O/U)
Sunlands Winter Shower	*Dvra.* Hawaiian Cassandra x *Phal. amabilis*	G.J.McKay(S.Heyden)
DISA		
Allan Graham	*Disa* Glasgow Orchid Conference x *Disa* Diores	M.Tibbs
Luke Edwards	*Disa* Kewfoam x *Disa* Unilangley	M.Bee
Madiba's Pride	*Disa* Pride of Constantia x *Disa* Unifoam	M.Tibbs

NAME	PARENTAGE	REGISTERED BY
DORITAENOPSIS		
Annie Van Tweel P1	*Dor. pulcherrima* x *Phal. lobbii*	A.Kolopaking
Ben You Beauty	*Dtps.* Ben You Stripes x *Dtps.* Yu Pin Coral	Ching Hua(Ben You)
Ben You Stripes	*Dtps.* Modern Beauty x *Phal.* Luchia Stripes	Ching Hua(Ben You)
Bette's Kay Russell	*Phal.* Red Hot Imp x *Dtps.* King Shiang's Beauty	A.Pickrel(Breckinridge)
Bette's Laura Madison	*Dtps.* Kelsie Takasaki x *Phal.* Goldberry	A.Pickrel(Carmela)
Bette's Peggy Gardner	*Phal.* Melodious Bells x *Dtps.* Theodore Horstmann	A.Pickrel(Breckinridge)
First Independence Day P2	*Dtps.* Jerri Sue King x *Phal. bellina*	Hausermann
Fusheng's Engage Ring	*Dtps.* Sogo Davis x *Dtps.* Fong-Tien's Pink Valentine	Fu-Sheng Huang
Fusheng's Fairy Shoes	*Phal.* Carmela's Pixie x *Dtps.* Freed Sandra	Fu-Sheng Huang
Fusheng's Hidden Gold	*Phal.* Chingruey's Black Gold x *Dtps.* Fusheng's Purple Gem	Fu-Sheng Huang
Fusheng's Pink Davis	*Dtps.* Nobby's Purple x *Dtps.* Sogo Davis	Fu-Sheng Huang
Fusheng's Strawberry Garden	*Dtps.* Fusheng's Fairy Shoes x *Dtps.* Sweet Strawberry	Fu-Sheng Huang
Fusheng's Warm Valentine	*Dtps.* Fusheng's Pink Davis x *Dtps.* Ho's Sweet Valentine	Fu-Sheng Huang
Ho's Black Rose	*Dtps.* Taida Pearl x *Phal.* Taisuco Roseherz	Tin-Fan Ho
Ho's Exotic Beauty	*Phal.* Da-chien Spider Beauty x *Dtps.* Ho's Exotic Twist	Tin-Fan Ho
Ho's Gelblitz Hall	*Dtps.* Hsinying Hall x *Phal.* Yungho Gelblitz	Tin-Fan Ho
Ho's Lemon Squash	*Dtps.* Sogo Manager x *Phal.* Tsay's Evergreen	Tin-Fan Ho
Jack Rakocy	*Phal.* Taisuco Kaaladian x *Dtps.* Soroa Corazon	Soroa
Mary Ann Lowe P3	*Dtps.* Malibu x *Phal.* Preston Creek	Jim Russell
Musick Lipstick	*Phal.* Kuntrarti Rarashati x *Dtps.* Abed-nego	F.&M.Kaufmann
Red Arthur	*Phal.* Arthur Freed x *Dtps.* Red Eve	Shim Phyau Fah(O/U)
Rita M. Annan-Brady	*Dtps.* Kyoto x *Dtps.* Pretty Nice	Annan-Brady(O/U)
Sedona's Fire Princess	*Dtps.* Taisuco Princess x *Dtps.* Taisuco Firebird	Sedona
Sedona's Firebird Waltz	*Dtps.* Brother Wedding Waltz x *Dtps.* Taisuco Firebird	Sedona
Sedona's Golden Jewel	*Phal.* Brother Golden Jewel x *Dtps.* Sogo Manager	Sedona
Sedona's Maki Dream	*Phal.* Maki Watanabe x *Dtps.* Sylvia's Dream	Sedona
Sedona's Mini Pirate	*Phal.* Brother Pirate King x *Dtps.* Rong Guan Mini	Sedona
Sedona's Pirate Waltz	*Dtps.* Brother Wedding Waltz x *Phal.* Brother Pirate King	Sedona
Sedona's Precious Acres	*Phal.* Brother Precious Stones x *Dtps.* Plantation Acres	Sedona
Shay Layman	*Phal.* Hsinying Stripes x *Dtps.* Sinica Prince	New Horizon Orch.(A.Easton)
Shim Beauty P4	*Dtps.* Red Arthur x *Phal. bellina*	Shim Phyau Fah
SIO's Dark Monarch	*Phal.* Golden Peoker x *Dtps.* Taisuco Firebird	Sky Island
SIO's Fine Wine	*Phal.* Golden Peoker x *Dtps.* Sogo Eagle	Sky Island
SIO's Little Eagle	*Dtps.* Sogo Eagle x *Phal.* Brother Sara Gold	Sky Island
SIO's Modern Art	*Phal.* Hausermann's Goldcup x *Dtps.* Modern Rose	Sky Island
SIO's Modern Eagle	*Dtps.* Sogo Eagle x *Dtps.* Modern Rose	Sky Island
Skye's Rose	*Phal.* New Mary x *Dtps.* Taisuco Firebird	Summerfield Orch.(O/U)
Skye's Rosy Jewel	*Phal.* Hwafeng Redjewel x *Dtps.* Skye's Rose	Summerfield Orch.(O/U)
Sunlands Beauty	*Dtps.* Taisuco Suma x *Phal.* Bogangar's Beauty	G.J.McKay(S.Heyden)
Sunlands Buddha Lady	*Phal.* Brother Buddha x *Dtps.* King Shiang's Lady	G.J.McKay(S.Heyden)
Sunlands Mount Lip	*Dtps.* Han-Ben's Girl x *Dtps.* Mount Lip	G.J.McKay(O/U)
Theodore Horstmann	*Dtps.* King Shiang's Rose x *Phal.* Cypress Pink	A.Pickrel(O/U)
Walnut Valley Pixie	*Phal.* Zuma's Pixie x *Dtps.* Brother Wedding Waltz	Rinke&Thompson
Walnut Valley Valentine	*Dtps.* Kung's Valentine x *Dtps.* Minho Valentine	B.Rinke(O/U)
Walnut Valley White	*Phal.* Flora Delight x *Dtps.* Hudson Bay	Rinke&Thompson
Wossie Amarillo P5	*Dtps.* Bay Shore x *Phal.* Preston Creek	Wossie
DRACULA		
Don Garling	*Drac.* Phantom x *Drac. platycrater*	L.O'Shaughnessy(Orchid Zone)
Lynn's Choice	*Drac. vampira* x *Drac. cordobae*	L.O'Shaughnessy(Orchid Zone)
ENCYCLIA		
Casike-Indio	*E.* [*Epi.*] *replicata* [*replicatum*] x *E.* [*Epi.*] *ambigua*	Mr/Mrs W.Osment
EPICATTLEYA		
Natsukomachi	*Epc.* Lime Sherbet x *C.* White Bridal	N.Taki(Yoshitaka Yamamoto)
White Star	*C. intermedia* x *Epi. ciliare*	K.Thammasiri
EPILAELIOCATTLEYA		
Lemon Trick	*Epc.* Lemon Twist x *Lc.* Trick or Treat	Universal Orch.
Zole	*Lc.* Electric Flash x *Epc.* Wolteri	C.Declerck
HAGERARA		
Hot Lip P6	*Dtps.* Memoria Clarence Schubert x *V.* Ubangi	June Fowler(J.Vande Weghe)
HAWKINSARA		
Mahalo Maiden	*Slc.* Mahalo Jack x *Bro. sanguinea*	F.Fordyce
HOLTTUMARA		
August Suntan	*Aranda* Suntan x *Ren. storiei*	S'pore Orchids(O/U)
KEFEROLLEA *		
Alice Marlow	*Bol. ecuadorana* x *Kefst. tolimensis*	Marlow Orch.

NAME	PARENTAGE	REGISTERED BY
LAELIOCATTLEYA		
Amazon Pink Parrot	*C.* Luteriana x *Lc.* Irene Finney	C.Wenzel
Carbon Lines	*Lc.* Oliver Lines x *C.* J. A. Carbone	H.Baggeler(O/U)
Electric Flash	*L. purpurata* x *Lc.* Electra	C.Declerck(O/U)
Ensueño y Aventura	*C. granulosa* x *Lc.* Summerland Girl	R.Sobrino
Flarple	*C. leopoldii* x *L.* Coronet	J.Rehfield
Good Friend	*Lc.* John Mossman x *C. mossiae*	Suwada Orch.(Mossman)
Harold Chen	*Lc.* Schronah x *C.* Inslaegii	A.L.Chen
Haru Urara	*Lc.* Culminant x *Lc.* Casitas Spring	AZ Co.
Hiroko and Hisashi	*C. lueddemanniana* x *Lc.* Memoria Jack Hayden	T.Takamatsu
Joe's Choice	*Lc.* Canhamiana x *Lc.* Mossiae	P.J.Lane(O/U)
Kengo March	*Lc.* Wedding March x *Lc.* Irene Finney	Y.Shiwaku(Dogashima)
Kizu	*C. harrisoniana* [*harrisoniae*] x *Lc.* Bonanza	K.Karasawa
Kyoko	*Lc.* Hawaiian Easter x *C.* Angel Bells	Akatsuka Orch.Gdns.
Mini Gift	*Lc.* Winter Gift x *C. walkeriana*	Suwada Orch.
Misaki Magic	*Lc.* Little Oliver x *Lc.* Orglade's Glow	N.Taki(Yoshitaka Yamamoto)
Mishima Butterfly	*L. anceps* x *Lc.* Excellency	Hanajima's
Pat's Golden Dream	*Lc.* Sug's Gold x *Lc.* Pixie Gold	H.N.Mills
Phantom	*C. mossiae* x *Lc.* Cariad's Mini-Quinee	Suwada Orch.
Rupcaster	*C.* Castson x *L. rupestris*	R.Pabst
Schronah	*C.* Dinah x *Lc.* Schroderae	A.L.Chen(O/U)
Seto Splendor	*Lc.* Persepolis x *Lc.* Melody Fair	K.Takahashi
Star Gate	*Lc.* Twinkle Star x *Lc.* Anaconda Two	Mrs H.Brown
Sug's Gold	*C.* Francis T. C. Au x *L. flava*	H.N.Mills(O/U)
Tzeng-Wen Lace	*Lc.* Tzeng-Wen Love x *Lc.* Melody Fair	Ching-Tien Wong
V. S. Ford	*Lc.* Walter Slagle x *Lc.* Pacific	V.Ford
Village Chief Augment	*Lc.* Taida Swan x *Lc.* Chyong Guu Swan	Chih-Cheng Chen
Village Chief Gout	*C.* Penny Kuroda x *Lc.* Guttamber	Chih-Cheng Chen
Vogelherd	*C.* Kerchoveana x *Lc.* Carbon Lines	H.Baggeler
Walter Derrin	*Lc.* Derrynane x *Lc.* Memoria Walter Armacost	J.Rehfield(O/U)
LYCASTE		
Beech Wood	*Lyc.* [*Ida*] *reichenbachii* ¶ x *Lyc.* Albanensis	D.Read
Dusky	*Lyc.* Taurus x *Lyc.* Auburn	Y.Suzuki
Green Wood	*Lyc.* [*Ida*] *reichenbachii* ¶ x *Lyc.* Rosamond	D.Read
Robinson	*Lyc.* Groganii x *Lyc.* Aphrodite	Y.Suzuki
Sunburst	*Lyc.* Island of Capri x *Lyc.* Incaic Sunset	Y.Suzuki
Wood Star	*Lyc. deppei* x *Lyc.* [*Ida*] *cobbiana*	D.Read
MAECHTLEARA *		
John	*Gptm.* Miami Conference x *Btmna. armillata* ¶	G.Monnier
MASDEVALLIA		
Carol Domeracki	*Masd.* Harlequin x *Masd. striatella*	L.O'Shaughnessy
Chinese New Year	*Masd. coccinea* [*militaris*] x *Masd.* Bocking Hybrid	G.Decker(Orchid Zone)
Georgian Franczyk	*Masd.* Midnight Plum x *Masd. coccinea* [*militaris*]	L.O'Shaughnessy(Orchid Zone)
Jodie Tedesco	*Masd.* Dean Haas x *Masd. chaparensis*	L.O'Shaughnessy(Orchid Zone)
Leopold Dragoni	*Masd. veitchiana* x *Masd. macroglossa* [*porcelliceps*]	D.Dragoni
Lynn O'Shaughnessy	*Masd. coccinea* [*militaris*] x *Masd.* Pixie Toy	L.O'Shaughnessy(Orchid Zone)
MILTASSIA		
Patty Parker	*Mtssa.* Royal Robe x *Brs.* Edvah Loo	Trop.O.Farm
MILTONIA		
Cindy's Castle	*Milt.* [*Mmt.*] Chillingford Manor x *Milt.* [*Mps.*] Cindy Kane	L.Farnsworth(O/U)
Demie de Fremont	*Milt.* [*Mps.*] Becquet Vincent x *Milt.* [*Mmt.*] Les Landes	E.Young O.F.
Ruth Warner	*Milt.* [*Mmt.*] Cindy's Castle x *Milt.* [*Mps.*] Goodhope Bay	L.Farnsworth
Ryan Thomas Coyne	*Milt.* [*Mps.*] Hamburg x *Milt.* [*Mps.*] Valerie Ann	Orchid House
Tropic Skies	*Milt. regnellii* x *Milt. moreliana*	Limberlost
Walnut Valley Glade	*Milt.* Belle Glade x *Milt. clowesii*	Rinke&Thompson
MILTONIDIUM		
Corrientes Porá FCA	*Milt. flavescens* x *Onc. marshallianum*	E.A.Flachsland
MOKARA		
Gladys Oumae	*Mkra.* Walter Oumae x *Ascda.* Royal Sapphire	W.Oumae(C.Ratanapeanchai)
ODONTIODA		
Tawpeg	*Oda.* Taw x *Odm.* Peggy Richardson	H.Scardefield
ODONTOCIDIUM		
Seminole	*Odcdm.* [*Colm.*] Wildcat x *Onc.* [*Mds.*] *schroederianum*	Everglades
ONCIDIUM		
Himekogane	*Onc. flexuosum* x *Onc. raniferum* ¶	N.Taki(Yoshitaka Yamamoto)
Lone Star Spirit	*Onc.* Bountiful x *Onc. leleui* ¶	O.Garrison(W.Bussey)
Long Yellow	*Onc. sphacelatum* x *Onc.* Moon River	N.Taki(Yoshitaka Yamamoto)
ONCIDUMNIA		
Felice Lee	*Ocd.* Sunshine Coast x *Tolu.* [*Onc.*] Golden Sunset	Multico
Sunshine Coast	*Onc.* [*Colm.*] Gold Coast x *Tolu.* [*Onc.*] Golden Sunset	Multico(O/U)

NAME	PARENTAGE	REGISTERED BY
OTAARA		
Lion's Harvest Time	*Ctna.* Maui Maid x *Bl.* Richard Mueller	Singapore Bot.Gdns
PAPHIOPEDILUM		
Alchemy	*Paph.* Peter Black x *Paph.* Yerba Nueva	Marriott Orchids
Alien World	*Paph.* Hiero x *Paph. victoria-regina*	Marriott Orchids
Amanda's Legacy	*Paph.* Amanda x *Paph.* Pillsbury Legacy	Suwada Orch.
Arctic Ice	*Paph.* White Legacy x *Paph.* Via Pekeruru	Marriott Orchids
Arctic Light	*Paph.* Via Muchos Ninos x *Paph.* White Legacy	Marriott Orchids
Aussie Adventure	*Paph.* Qantas x *Paph.* Colonist	Ratcliffe
Autumn Light	*Paph.* Chardmoore x *Paph.* White Legacy	Marriott Orchids
Autumn Vale	*Paph.* Honeycomb Creek x *Paph.* Forest Vale	Marriott Orchids(W.Sinkler)
Badger Creek	*Paph.* Grand Canyon x *?*	Rod McLellan Co.
Bellagon	*Paph.* Dragon Flag x *Paph. wenshanense*	H.Nagao
Caroline Hands	*Paph. glaucophyllum* x *Paph. rothschildianum*	G.Hands(O/U)
Chaldy	*Paph.* Mandy-Lu x *Paph.* Challow	Papa Aroha(O/U)
Chaos Beauty	*Paph.* Pandemonium x *Paph.* Pacific Beauty	Suwada Orch.
Charis Maid	*Paph.* Charis x *Paph.* Gaymaid	Ratcliffe
Chart of Destiny	*Paph.* Flight Path x *Paph.* Jacandelo	Ratcliffe
Chou-Yi Yuki	*Paph. hangianum* [*singchii*] ¶ x *Paph. niveum*	Ching Hua(Shin-Yi Orch.)
Cimarwood	*Paph.* Cimarine x *Paph.* Woodruff	Ratcliffe
Colonial Jack	*Paph.* Uncle Jack x *Paph.* Colonist	Ratcliffe
Color Magic	*Paph.* Startler x *Paph.* White Legacy	Marriott Orchids
Commander Jack	*Paph.* Jackanory x *Paph.* Commando	Ratcliffe
Cool Trix	*Paph. godefroyae* x *Paph.* Double Trix	Green Note
Copper Brown	*Paph.* Copperware x *Paph.* Brownstone	Ratcliffe
Coro Gold	*Paph.* Freckles x *Paph.* Coastal Gold	Papa Aroha
Denobian Moon	*Paph.* Asteroid x *Paph.* Norito Hasegawa	Marriott Orchids(N.Tannaci)
Denobian World	*Paph.* Memoria Richard Steele x *Paph. malipoense*	Marriott Orchids(N.Tannaci)
Desert Snow	*Paph.* Death Valley x *Paph.* White Legacy	Marriott Orchids
Divinca	*Paph.* Inca x *Paph.* Diversion	Papa Aroha
Dream Weaver	*Paph.* Rolfei x *Paph.* John Jack	Marriott Orchids
Dreamscape	*Paph.* White Legacy x *Paph.* Tree of Beauty	Marriott Orchids
Eastern Thunder	*Paph.* Western Thunder x *Paph.* Burpham	Marriott Orchids
Elfin Moon	*Paph.* Gege Hughes x *Paph.* Elfstone	Marriott Orchids
Embazella	*Paph.* Hazella x *Paph.* Emba	Ratcliffe
Emerald Light	*Paph.* Peter Black x *Paph.* Via Pekeruru	Marriott Orchids
Eternal Kingdom	*Paph.* Erie x *Paph.* Burpham	Marriott Orchids(W.W.Wilson)
Far Horizon	*Paph.* Redmix x *Paph.* Mildred Munday	Marriott Orchids(B.Fraser)
Fire and Ice	*Paph.* Winston Churchill x *Paph.* White Legacy	Marriott Orchids
Fire Starter	*Paph.* Revelry x *Paph.* Kerry Anne	Marriott Orchids(B.Fraser)
Flying Troop	*Paph.* Brunawhirl x *Paph.* Super Trooper	Ratcliffe
Golden Glow	*Paph.* Via Oro x *Paph.* Via Pekeruru	Marriott Orchids
Golden Liz	*Paph.* Liz Greenlees x *Paph.* Golden Days	Papa Aroha
Green Command	*Paph.* Greenshank x *Paph.* Commando	Ratcliffe
Green Mirror	*Paph.* Hanes Jolly Green x *Paph.* Callon	Marriott Orchids(J.Hanes)
Harvest Maid	*Paph.* Gaymaid x *Paph.* Vintage Harvest	Ratcliffe
Heaven's Grace	*Paph.* Grace Day x *Paph. bellatulum*	Marriott Orchids
Hill Command	*Paph.* Commando x *Paph.* Winston Churchill	Ratcliffe
Hiroko's Dream	*Paph.* Hiroko's Ruby x *Paph.* Skip Bartlett	Suwada Orch.
Honeytime	*Paph.* Honeycomb Creek x *Paph.* Harvest Time	Papa Aroha
Hsinying Caleo	*Paph. callosum* x *Paph.* Ruby Leopard	Ching Hua
Hsinying Candimaude	*Paph.* Candy Apple x *Paph.* Mod Maude	Ching Hua
Hsinying Carlos	*Paph. callosum* x *Paph.* Hsinying Web	Ching Hua
Hsinying Fairbre	*Paph.* Macabre x *Paph. fairrieanum*	Ching Hua
Hsinying Fairsar	*Paph. fairrieanum* x *Paph.* Pulsar	Ching Hua
Hsinying Magic	*Paph.* Shadow Magic x *Paph.* Voodoo Magic	Ching Hua
Hsinying Makurow	*Paph.* Makuli x *Paph.* Flame Arrow	Ching Hua
Hsinying Pacila	*Paph.* Great Pacific x *Paph.* Laser	Ching Hua
Impressive Gold	*Paph.* Golden Acres x *Paph.* Impression	Ratcliffe
Impressive Maid	*Paph.* Gaymaid x *Paph.* Impression	Ratcliffe
In Person	*Paph.* Inferno x *Paph.* Personality	Ratcliffe
In-Charm Almagilb	*Paph.* Gilbert Blythe x *Paph.* Alma Gavaert	In-Charm O.N.
In-Charm Almashade	*Paph.* Shadowfax x *Paph.* Alma Gavaert	In-Charm O.N.
In-Charm Canary	*Paph.* Mount Toro x *Paph. armeniacum*	In-Charm O.N.
In-Charm Cotton Candy	*Paph.* Susan Booth x *Paph. vietnamense*	In-Charm O.N.
In-Charm Crane	*Paph.* Lady Isabel x *Paph. emersonii*	In-Charm O.N.
In-Charm Dragon	*Paph.* Prince Edward of York x *Paph.* Jerry Spence	In-Charm O.N.
In-Charm Enchantment	*Paph.* Greyi x *Paph.* Oriental Enchantment	In-Charm O.N.
In-Charm Golden	*Paph.* Vanguard x *Paph. armeniacum*	In-Charm O.N.
In-Charm Greenery	*Paph.* Yerba Buena x *Paph.* Golden Days	In-Charm O.N.
In-Charm Hamavin	*Paph.* Hama Chilwin x *Paph.* Valwin	In-Charm O.N.
In-Charm Jewel	*Paph.* S. Gratrix x *Paph. vietnamense*	In-Charm O.N.
In-Charm Makuhonda	*Paph.* La Honda x *Paph.* Makuli	In-Charm O.N.
In-Charm Mars	*Paph.* Pulsar x *Paph. godefroyae*	In-Charm O.N.
In-Charm Micstone	*Paph.* Stoned Susan x *Paph. micranthum*	In-Charm O.N.
In-Charm Mirage	*Paph.* Lebeau x *Paph. godefroyae*	In-Charm O.N.
In-Charm Pride	*Paph.* Prince Edward of York x *Paph.* Saint Swithin	In-Charm O.N.
In-Charm Pulkuli	*Paph. sukhakulii* x *Paph.* Pulsar	In-Charm O.N.
In-Charm Ribon	*Paph.* Berenice x *Paph.* Michael Koopowitz	In-Charm O.N.
In-Charm Saturn	*Paph.* Pulsar x *Paph. wenshanense*	In-Charm O.N.
PAPHIOPEDILUM (continued)		
In-Charm Yuki	*Paph.* In-Charm White x *Paph. bellatulum*	In-Charm O.N.
Ingenuity	*Paph.* Rolfei x *Paph.* Skip Bartlett	Marriott Orchids(W.Sinkler)
Ivory Dream	*Paph.* Indian Ivory x *Paph.* Psyche	Ratcliffe
Japan Tour	*Paph.* Parry Gripp x *Paph.* Tokyo Festival	Suwada Orch.
Kayday	*Paph.* Kay Rinaman x *Paph.* Golden Days	Papa Aroha
King Frank	*Paph.* Gala King x *Paph.* Frank Pearce	Papa Aroha(O/U)
L'Indienne de Mulhouse	*Paph. philippinense* x *Paph.* Rosemead	Jard.Luxembourg
Leopard Spots	*Paph.* Spotter x *Paph.* Mach One	Marriott Orchids(B.Fraser)
Leschenault de la Tour	*Paph. primulinum* x *Paph. victoria-regina*	Jard.Luxembourg
Let's March	*Paph.* Letozia x *Paph.* March-Fire	Ratcliffe
Light Speed	*Paph.* Mach One x *Paph.* Trenchant	Marriott Orchids
Lisako Hanajima	*Paph.* Gege Hughes x *Paph.* Knight's Chalice	Hanajima's
Lone Puddle	*Paph.* Solitaire x *Paph.* F. C. Puddle	Ratcliffe
Lost Horizon	*Paph.* Wend Valley x *Paph.* White Legacy	Marriott Orchids
Lover's Leap	*Paph.* Wend Valley x *Paph.* Amanda	Marriott Orchids
Magic Dust	*Paph.* Stardust Tree x *Paph.* Magic Mood	Papa Aroha
Magic Gold	*Paph.* Sheila Hanes x *Paph.* Magic Mood	Marriott Orchids
Magic Moon	*Paph.* Green Moon x *Paph.* Hellas	Suwada Orch.
Magzia	*Paph.* Momag x *Paph.* Letozia	Ratcliffe
Marine World	*Paph.* Cimarine x *Paph.* Small World	Ratcliffe
Miss Mildred	*Paph.* Miss World x *Paph.* Mildred Hunter	Ratcliffe
Miya Beautiful Dream	*Paph.* Blendia x *Paph.* S. Gratrix	T.Ozawa
Miya Bengal Tiger	*Paph.* Kimura's Dream x *Paph.* Blendia	T.Ozawa
Miya Big Artist	*Paph.* Kimura Wind x *Paph.* Via Hatsuyuki	T.Ozawa
Miya Dream House	*Paph.* Tree of Advance x *Paph.* Tree of Motoo	T.Ozawa
Miya First Snow	*Paph.* Skip Bartlett x *Paph.* Green Gate	T.Ozawa
Miya Green Beret	*Paph.* San Francisco x *Paph.* Rod McLellan	T.Ozawa
Miya Happy Present	*Paph.* Stargate x *Paph.* Psyche	T.Ozawa
Miya Hime World	*Paph.* Colonella x *Paph.* Lemon Chiffon	T.Ozawa
Miya Indian Beauty	*Paph.* Thunder Bay x *Paph.* Pandemonium	T.Ozawa
Miya Kagaribi	*Paph.* Lyric x *Paph.* Tree of Amanda	T.Ozawa
Miya Karakurenai	*Paph.* Kay Penny x *Paph.* White Knight	T.Ozawa
Miya Kimura World	*Paph.* Vallarrow x *Paph.* Tree of Amanda	T.Ozawa
Miya Oboro Moon	*Paph.* Via Hatsuyuki x *Paph.* Green Gate	T.Ozawa
Miya Oriental Beauty	*Paph.* Tree of Paradise x *Paph.* Via Hatsuyuki	T.Ozawa
Miya Rosy Lalla	*Paph.* Ogallala x *Paph.* Rosy Prospect	T.Ozawa
Miya Sakuragari	*Paph.* Tree of Motoo x *Paph. godefroyae*	T.Ozawa
Miya Spring Carnival	*Paph.* Algonquin x *Paph.* Paeony	T.Ozawa
Miya Spring Paradise	*Paph.* Tenga World x *Paph.* Tree of Paradise	T.Ozawa
Miya Tiger Conco	*Paph.* Tiger Top x *Paph.* Conco-bellatulum	T.Ozawa
Miya Victory	*Paph.* Yamazaki World x *Paph.* Mighty Frolic	T.Ozawa
Miya Wedding March	*Paph.* Via Hatsuyuki x *Paph.* Small World	T.Ozawa
Miya Yukiakari	*Paph.* Via Hatsuyuki x *Paph.* Shadowfax	T.Ozawa
Moondrift	*Paph.* Mountain Meadow x *Paph.* Porcelain Treasure	Marriott Orchids
Mystery Lady	*Paph.* White Legacy x *Paph. micranthum*	Marriott Orchids
Nara Carnival	*Paph.* Colonist x *Paph.* Novisphere	T.Ozawa(E.Shimada)
Nara Carnival Queen	*Paph.* Nara Carnival x *Paph.* Illumination	T.Ozawa(E.Shimada)
Nara Happy Gay	*Paph.* World Famous x *Paph.* Nara Carnival	T.Ozawa(E.Shimada)
New Beat	*Paph.* New Edition x *Paph.* World Venture	Ratcliffe
New Dawn	*Paph.* Orchilla x *Paph.* White Legacy	Marriott Orchids
Nicholle Tower	*Paph.* Lynleigh Koopowitz x *Paph. rothschildianum*	E.Young O.F.
Orchid Drive	*Paph.* Pillsbury Legacy x *Paph.* Parry Gripp	Suwada Orch.
Pavaday	*Paph.* Pavarotti x *Paph.* Lambert Day	Papa Aroha
Pavatree	*Paph.* Pavarotti x *Paph.* Spring Tree	Papa Aroha
Pavaxan	*Paph.* Pavarotti x *Paph.* Xanadu	Papa Aroha
Peach Sorbet	*Paph.* Peachie x *Paph.* White Legacy	Marriott Orchids
Peacock Dawn	*Paph.* Ruby Peacock x *Paph.* Red Horizon	Marriott Orchids(Orchid Zone)
Peacock Formal	*Paph.* Tuxedo Junction x *Paph.* Ruby Peacock	Marriott Orchids(Orchid Zone)
Perfect Storm	*Paph.* Winston Churchill x *Paph.* Western Thunder	Marriott Orchids
Philippe Gabrion	*Paph. appletonianum* [*hainanense*] x *Paph. henryanum*	P.Bertaux
Pink Porcelain	*Paph.* Porcelain Treasure x *Paph.* White Legacy	Marriott Orchids
Pink Satin	*Paph.* Satin Touch x *Paph.* Saint Ouens Bay	Marriott Orchids
Pontac	*Paph.* Armeni White x *Paph. rothschildianum*	E.Young O.F.
Porcelain Moon	*Paph.* Porcelain Treasure x *Paph.* Via Virgenes	Marriott Orchids
Poulsbo	*Paph. kolopakingii* x *Paph. glanduliferum* [*praestans*]	S.Ware
Poulsbo Canary	*Paph. platyphyllum* [*stonei* var. *latifolium*] x *Paph. armeniacum*	S.Ware
Ranzales	*Paph.* Ruth Curran x *Paph.* Josie Gonzales	Papa Aroha
Red Delight	*Paph.* Via Luna Este x *Paph.* Tree of Beauty	Marriott Orchids
Red Dominion	*Paph.* Amanda x *Paph.* Sylvan Vale	Marriott Orchids
Red Valor	*Paph.* Valred x *Paph.* Sandra Mary	Marriott Orchids(B.Fraser)
Redmix	*Paph.* Keyeshill x *Paph.* Decameron	Papa Aroha
Revelry	*Paph.* World Exile x *Paph.* Jacandelo	Marriott Orchids(B.Fraser)
Robert Nathan Boersma	*Paph.* Ruby Mist x *Paph.* Raisin Pie	P.Boersma(O/U)
Royal Sequin	*Paph.* Sequin x *Paph.* Royale	Ratcliffe
Ryan Thomas	*Paph. sukhakulii* x *Paph.* Laser	Orchid House
Seduction	*Paph.* Amanda x *Paph.* Via Luna Este	Marriott Orchids
Sierra Ice	*Paph.* Sierra Lace x *Paph.* Skip Bartlett	Marriott Orchids(W.Sinkler)
Simon Field	*Paph.* Transvaal x *Paph.* Golddollar	M.Tibbs

NAME	PARENTAGE	REGISTERED BY
PAPHIOPEDILUM (continued)		
Snow Dancer	*Paph.* Memoria Jack Tonkin x *Paph.* Skip Bartlett	Marriott Orchids
Snow Flurry	*Paph.* Snowflake x *Paph.* Skip Bartlett	Marriott Orchids(W.Sinkler)
Song of Joy	*Paph.* Orchilla x *Paph.* Amanda	Marriott Orchids
Southern Lights	*Paph.* Snowram x *Paph.* White Legacy	Marriott Orchids
Speed King	*Paph.* Winston Churchill x *Paph.* Light Speed	Marriott Orchids
Speed Queen	*Paph.* Burpham x *Paph.* Light Speed	Marriott Orchids
Storm Queen	*Paph.* Thunder Bay x *Paph.* Provocation	Marriott Orchids
Strange Love	*Paph.* Macabre x *Paph. callosum*	Marriott Orchids(Orchid Zone)
Sun Castle	*Paph.* Via Virgenes x *Paph.* Copper King	Marriott Orchids(W.Sinkler)
Sun King	*Paph.* Via Pekeruru x *Paph.* Magic Mood	Marriott Orchids
Sun Song	*Paph.* Hellas x *Paph.* Sweet Harmony	Ratcliffe
Sun Tiger	*Paph.* Hellas x *Paph.* Radiant Tiger	Ratcliffe
Suwada's Beauty	*Paph.* Tree of Suwada x *Paph.* Pacific Beauty	Suwada Orch.
Sylvan Moon	*Paph.* White Legacy x *Paph.* Sylvan Vale	Marriott Orchids
Sylvan Song	*Paph.* Sylvan Vale x *Paph.* Tree of Beauty	Marriott Orchids
Tannacity Rose	*Paph. micranthum* x *Paph.* Muriel Constance	Marriott Orchids(N.Tannaci)
Temptress	*Paph.* Orchilla x *Paph.* Sylvan Vale	Marriott Orchids
Thunder Chant	*Paph.* Trenchant x *Paph.* Thunder Bay	Marriott Orchids
Thunder Speed	*Paph.* Light Speed x *Paph.* Western Thunder	Marriott Orchids
Tree of Advance	*Paph.* Tree of Amanda x *Paph.* Advancement	T.Ozawa(M.Kimura)
Valley Girl	*Paph.* Wend Valley x *Paph.* Via Luna Este	Marriott Orchids
Victoria's Song	*Paph.* Via Victoria x *Paph.* White Legacy	Marriott Orchids
Vincent	*Paph. helenae* [*delicatum*] x *Paph. tranlienianum*	O.Gruss(O/U)
Virgin Saint	*Paph.* Yerba Buena x *Paph.* Twin Saints	Marriott Orchids
Vital Jack	*Paph.* Vital Venture x *Paph.* Jackanory	Ratcliffe
Westmount	*Paph.* Andronicus x *Paph.* Armeni White	E.Young O.F.
White Emotion	*Paph.* Hiro Season x *Paph.* Stargate	M.Shimoda
White Galaxy	*Paph.* Memoria Jack Tonkin x *Paph.* White Legacy	Marriott Orchids
Winter Elf	*Paph.* White Legacy x *Paph.* Elfstone	Marriott Orchids
Winter Star	*Paph.* Starr Dust x *Paph.* White Legacy	Marriott Orchids
Wonder Red	*Paph.* Jenna Marie x *Paph.* Wonder Ball	Suwada Orch.
Wonder World	*Paph.* Geelong x *Paph.* World Exile	Marriott Orchids(B.Fraser)
World Command	*Paph.* Small World x *Paph.* Commando	Ratcliffe
World Dazzler	*Paph.* Dazzler x *Paph.* World Beater	Ratcliffe
World Traveller	*Paph.* Go Far x *Paph.* Sparsholt	Ratcliffe
World Warrior	*Paph.* Small World x *Paph.* Provocation	Marriott Orchids
Wynnewood	*Paph.* Erie x *Paph.* Santee	Marriott Orchids(W.W.Wilson)
Xanana	*Paph.* Salamander x *Paph.* Xanadu	Papa Aroha
PERREIRAARA		
Phagawan	*Aerdv.* Sandorata x *Rhy. coelestis*	B.Benjakarn(P.Honwichai)
PHALAENOPSIS		
Archie Goodwin	*Phal.* Southern Belle x *Phal.* Inspector Cramer	A.Pickrel(O/U)
Arthur Freed's Criterion P7	*Phal.* Inspiration x *Phal. pallens*	Freed
Astrid Lukas	*Phal.* Wössner Feuer x *Phal.* Mad Hatter	K.Zinterhof
Bahia P8	*Phal.* Juanita x *Phal. pallens*	Hager Orch.
Bette's Fay Wilson	*Phal. venosa* x *Phal.* Artemis	A.Pickrel(O/U)
Bette's Grace Blair	*Phal.* Fortune Buddha x *Phal.* Jeanette Pellman	A.Pickrel(Breckinridge)
Bette's Janet Cronin	*Phal.* Golden Buddha x *Phal.* Carolina Yellow Gold	A.Pickrel(T.Larkin)
Bette's Madge	*Phal.* Jordan's Pixie x *Phal.* Zuma's Pixie	A.Pickrel(Carmela)
Bette's Margaret Carter	*Phal.* Malibu Minute x *Phal.* Zuma's Pixie	A.Pickrel
Bette's Mary Lucy	*Phal.* Brother Pirate King x *Phal. venosa*	A.Pickrel(G.Snellenburger)
Big John P9	*Phal.* Dos Pueblos x *Phal.* Snowfield	Big John's
Bokay Beauty P10	*Phal.* Mary Chantry x *Phal.* Queen Gladys	R.G.Dunlop
Ceredwyn Anne P11	*Phal.* Oriental Latin x *Phal. cornu-cervi*	G.Richards
Cher and Franc	*Phal.* Cher Ann x *Phal.* Francine	R.Higley(O/U)
Chester Hills P12	*Phal.* Gertrude Beard x *Phal. pulchra*	M.Bachner
Cynthia Ai P13	*Phal.* McCoy's Diamond x *Phal.* Steven Ai	David Ai
Dave Higley P14	*Phal.* Cher and Franc x *Phal.* Lady Ruby	R.Higley
Donald Perry's Fort P15	*Phal.* Lulu x *Phal.* Orchid Acres	Fort Caroline
Donna Louise P16	*Phal. violacea* x *Phal. hieroglyphica*	L.Dewey
Eda Conklin P17	*Phal.* Best Girl x *Phal.* Memoria Hans-Werner Pelz [Pele]	O.Kirsch
Eureka's Gold P18	*Phal.* Sheba x *Phal.* ?	O.W. Int.(Eureka Orchid Gdn.)
Even Juan	*Phal.* Eventide x *Phal.* Juanita	G.Richards(O/U)
Fintje Kunriawati P19	*Phal. pulchra* x *Phal. violacea*	A.Kolopaking
Freed's Malibu Fascination P20	*Phal. lueddemanniana* x *Phal. pallens*	Freed
Frenchy's Plastic Yellow P21	*Phal. amboinensis* x *Phal. hieroglyphica*	Frenchy(M.J.Bates)
Frosted Herb	*Phal.* Zadi Herb x *Phal.* Rosefrost	RHS(O/U)
Gold Veins P22	*Phal. pallens* x *Phal. pulchra*	Alberts/Merkel
Golden Star P23	*Phal. pallens* x *Phal.* Mrs. J. H. Veitch	E.Carlson
Gregory Bettencourt	*Phal.* Victoria Trent x *Phal.* Walter Bettencourt	Bettencourt
Hannah Mae Ho P24	*Phal.* Betty Ho x *Phal.* Pat Miranda	Philip Ho
Hausermann's Borneo Fantasy P25	*Phal.* Zada x *Phal. bellina*	Hausermann
Hawaiian Moonlight P26	*Phal.* Radiance x *Phal.* Moonlit Vision	David Ai
Herman Sweet P27	*Phal. cornu-cervi* x *Phal. pulchra*	Casa Luna
Ho's Black Plum	*Phal.* Ho's Funny Harlequin x *Phal.* Abendrot	Tin-Fan Ho
Ho's Black Violacea	*Phal.* Ho's Black Cherub x *Phal.* Penang Violacea	Tin-Fan Ho

NAME	PARENTAGE	REGISTERED BY
PHALAENOPSIS (continued)		
Ho's Cherubic Cheek	*Phal.* Ho's Fantastic Splash x *Phal.* Ho's Little Caroline	Tin-Fan Ho
Ho's Cherubic Freckles	*Phal.* Yellow Peoker x *Phal.* Ho's Fantastic Splash	Tin-Fan Ho
Ho's Dream Coming True	*Phal.* Timothy Christopher x *Phal.* Penang Violacea	Tin-Fan Ho
Ho's Fantastic Culiacan	*Phal.* Ho's Yellow Lip x *Phal.* Culiacan	Tin-Fan Ho
Ho's Green Marble	*Phal.* Ho's Kuangfeng Glory x *Phal.* Yungho Gelblitz	Tin-Fan Ho
Ho's Little Girl	*Phal.* Liu's Bright Ruby x *Phal.* Champion Girl	Tin-Fan Ho
Ho's Little Pointer	*Phal.* Haur Jin Diamond x *Phal.* Ho's Little Caroline	Tin-Fan Ho
Ho's Yellow Diamond	*Phal.* Dou-dii Rose x *Phal.* Dou-dii Spot	Tin-Fan Ho
Inspector Cramer	*Phal.* Paul Tatar x *Phal.* Memoria Yoshino Mishima	A.Pickrel(O/U)
Irene Pendzialek P28	*Phal.* Hello Dolly x *Phal.* Katukelle	W.J.Shaban
Jet Setter P29	*Phal.* Dos Pueblos x *Phal. pulchra*	R.K.Mizuta
Joshua Irwin Ginsberg P30	*Phal. venosa* x *Phal. bellina*	H. Ginsberg
Kapiolani P31	*Phal.* Layhua x *Phal.* Percy Porter	David Ai
Kathinka P32	*Phal.* Lipperose x *Phal.* Pink Flash	Lemförder Orch.
Lani Rose P33	*Phal.* Oriental Latin x *Phal. corningiana*	G.Richards
Layhua	*Phal.* Layla Beard x *Phal.* Leilehua	David Ai(O/U)
Lin Huong Sen P34	*Phal.* George Vasquez x *Phal. bellina*	Lim Foh Thye(Lum Chin Orch.)
Little Boy P35	*Phal.* Abendrot x *Phal.* Polar Oasis	G.L.Staats
Liu's Twilight Rainbow	*Phal.* Rainbow Chip x *Phal.* Timothy Christopher	Hwa-Tung Liu
Ludwig van Beethoven	*Phal. gigantea* x *Phal.* Penang Girl	S.R.Weltz(H.Wallbrunn)
Majeke	*Phal.* Solvang x *Phal.* Romance	R.K.Brinkler(O/U)
Marian's Delight P36	*Phal.* Majeke x *Phal.* James McPherson	R.K.Brinkler(Ratcliffe)
Mariechan Bach P37	*Phal. mariae* x *Phal. reichenbachiana*	W.W.G.Moir
Marjan	*Phal.* Henriette Lecoufle x *Phal.* Joseph Hampton	J.Lier
McCoy's Diamond	*Phal.* Mrs. Lester McCoy x *Phal.* Diamond Pink	David Ai(O/U)
Middle Man	*Phal. intermedia* x *Phal. mannii*	Ewing(O/U)
Miva Eleonore Esposito	*Phal.* Miva Casablanca x *Phal.* Amber Woodson	Michel Vacherot
Moonlit Vision	*Phal.* Kathy Marie x *Phal.* Twin Vision	David Ai(O/U)
Nancy Pforzheimer	*Phal.* Maxine Heath x *Phal. violacea*	S.R.Weltz(H.Wallbrunn)
New Cassandra	*Phal.* Cassandra x *Phal.* New Glad	G.J.McKay(Dendi's Orch.)
Obermoos	*Phal.* Cadifa x *Phal.* Ramandia Erich Nilson	J.Isler(O/U)
Oregon Nurse's Centennial	*Phal.* Elizabeth Tudor x *Phal.* Hausermann's Goldcup	Sky Island
Oriental Latin	*Phal.* Even Juan x *Phal.* Yap Wee Hiong	G.Richards(O/U)
Oscar's Lucifer P38	*Phal.* Memoria Hans-Werner Pelz [Pele] x *Phal. bellina*	O.Kirsch
Paifang's Silver P39	*Phal.* Mad Lips x *Phal. pallens*	Paifang Orch.Gdn.
Palacea P40	*Phal. pallens* x *Phal. bellina*	J.Redlinger
Pamasue P41	*Phal. amabilis* x *Phal.* Mistinguett	Harry Baldwin(Neville Orchids)
Pancawarna P42	*Phal.* Golden Sands x *Phal. bellina*	A.Parnata
[Pele P43	*Phal. equestris* x *Phal. pulchra*	O.Kirsch]
Peppermint Pat P44	*Phal.* Peppermint x *Phal. pallens*	Janet Crist(J.Ewing)
Perle du Leman P45	*Phal.* Obermoos x *Phal. mannii*	J.Isler
Ping Ping P46	*Phal.* Golden Sands x *Phal. hieroglyphica*	Helen Webb
Pink Sandstorm	*Phal.* Little Pink Doris x *Phal.* Sandstorm	E.W.Hubbard(O/U)
Polar Hieroglyph P47	*Phal. hieroglyphica* x *Phal.* Polar Bear	G.& I.Scott(Beall)
Polar Oasis	*Phal.* Polar Bear x *Phal.* Oasis	G.L.Staats(O/U)
Queen Gladys	*Phal.* Viroonchan x *Phal.* Gladys Read	R.G.Dunlop(O/U)
Queen Rozada	*Phal.* Queen Emma x *Phal.* Rozada	W.H.Starke(O/U)
Ramandie Erich Nilson	*Phal.* Ramona x *Phal.* Karleen's Wendy	J.Isler(O/U)
Randy Jay	*Phal.* Pinlong Spring x *Phal.* Winter Kaala	C.Wold(L.A.Hanson)
Redazzle P48	*Phal.* Winter Dawn x *Phal. pulchra*	Richella
Ruby Comet P49	*Phal.* William Sanders x *Phal.* Pink Sandstorm	E.W.Hubbard
Sedona's Formosa Ven	*Phal.* Formosa San Fan x *Phal.* Venimp	Sedona
Sedona's Golden Ven	*Phal.* Venimp x *Phal.* Brother Lawrence	Sedona
Sedona's Little Snow	*Phal.* Culiacan x *Phal.* Robert Brown	Sedona
Sedona's Tiger	*Phal.* Tiger Butter x *Phal.* Venimp	Sedona
Sedona's Wild Puma	*Phal.* Brother Wildcat x *Phal.* Brother Precious Stones	Sedona
Shaffer's Temptress P50	*Phal.* Doris x *Phal. pulchra*	Shaffer's
Shining White P51	*Phal.* Jane L. Kingsbury x *Phal.* Ann Thorne	S'pore Orchids
SIO's Cinnamon Cup	*Phal.* Brother Sara Gold x *Phal.* Hausermann's Goldcup	Sky Island
SIO's Golden Day	*Phal.* Hausermann's Goldcup x *Phal.* Taisuco Day	Sky Island
SIO's Lil Darlin'	*Phal.* Be Glad x *Phal.* Petite Snow	Sky Island
SIO's Little Twinkle	*Phal.* Be Glad x *Phal.* Zuma's Pixie	Sky Island
SIO's So Wild	*Phal.* Be Glad x *Phal.* Brother Wild Dorothy	Sky Island
SIO's Spring Surprise	*Phal.* Ever-spring King x *Phal.* Taisuco Day	Sky Island
SIO's Velvet Imp	*Phal.* Golden Imp x *Phal.* George Vasquez	Sky Island
Sole Mio	*Phal.* Sweet Revenge x *Phal.* Carmela's Brite Lites	R.Rodriguez(Carmela)
Starke's Pot-pourri P52	*Phal.* Queen Rozada x *Phal.* Lippstadt	W.H.Starke
Stout's Gallant Hero	*Phal.* Southern Belle x *Phal.* Archie Goodwin	A.Pickrel(Breckinridge)
Su-An Blonde P53	*Phal.* Terri Cook x *Phal. reichenbachiana*	P.Hwang
Sunlands New Rain Dancer	*Phal.* Sunlands Sarah's Raindancer x *Phal.* Sunlands Rain Dancer	G.J.McKay (S.Heyden)
Sunlands Sarah's Raindancer	*Phal.* Memoria Sarah Robertson x *Phal.* Rain Dancer	G.J.McKay(S.Heyden)
Sunlands White Shower	*Phal.* Ho's Amaglad x *Phal.* New Cassandra	G.J.McKay(Dendi's Orch.)
Sunrise Over Hawaii P54	*Phal.* Lavender Lady x *Phal.* Zada's Dawn	David Ai
Suzy Bridges P55	*Phal.* Pisgah Star x *Phal.* Suzanne Wenzel	G.Smith
Tutone P56	*Phal.* Terri Cook x *Phal. bellina*	J.Redlinger
Twin Vision	*Phal.* Lillian Kay x *Phal.* Lillian Hozaki	David Ai(O/U)

NAME	PARENTAGE	REGISTERED BY
PHALAENOPSIS (continued)		
Twinkle-Toes P57	*Phal. mannii* x *Phal.* Middle Man	J.Ewing
Walnut Valley Fancy	*Phal.* Brother Fancy x *Phal.* Glenmore	Rinke&Thompson
Walnut Valley Glenmore	*Phal.* Brother Purple x *Phal.* Glenmore	Rinke&Thompson
Walnut Valley Imp	*Phal.* Red Hot Imp x *Phal.* Brother Purple	B.Rinke
Walnut Valley Jezebel	*Phal.* Jezebel x *Phal.* Brother Purple	Rinke&Thompson
Walnut Valley Magenta	*Phal.* Walnut Valley Red x *Phal.* Brother Purple	Rinke&Thompson
Walnut Valley Purple	*Phal.* Brother Max x *Phal.* Brother Purple	Rinke&Thompson
Wolfsburg P58	*Phal.* Herbert von Steimker x *Phal. fasciata*	K.Leistner
Yeap Eng Sim P59	*Phal.* Memoria Loke Sokeen x *Phal.* Sulochana	A.Tan(Hon Sang)
Zadi Herb	*Phal.* Herbert Hager x *Phal.* Zadian	RHS(O/U)
PHRAGMIPEDIUM		
Les Ecrehou	*Phrag.* Desormes x *Phrag.* Hanne Popow	E.Young O.F.
POTINARA		
Adelheid Baggeler	*Pot.* Creozac x *C. dolosa*	H.Baggeler
Amazon Anniversary	*Pot.* Kozo's Scarlet x *Blc.* Goldenzelle	C.Wenzel
Amazon Royal Splash	*C.* Amazon Flame x *Pot.* Tokyo Bay	C.Wenzel
Butter Berry	*Slc.* Seagulls Apricot x *Blc.* Buttercup	F.Fordyce
California Queen	*Pot.* Hisako Akatsuka x *Slc.* California Apricot	Suwada Orch.
Casitas Dream	*Pot.* Vallespin x *Lc.* Lake Casitas	Suwada Orch.
Cosmo-Round	*Pot.* Cosmo-Zelle x *C. walkeriana*	Kokusai
Creozac	*Pot.* Creole x *Slc.* Anzac	H.Baggeler(O/U)
Innocent Doll	*Bc.* Pastoral x *Slc.* Sunrise Doll	Suwada Orch.
Lois Gavurin	*Slc.* Quadzac x *Bc.* Mount Anderson	A.Gavurin(R.Bateman)
Quiet Dandy	*Blc.* Summer Lady x *Sc.* Beaufort	Suwada Orch.
Red Fantasia	*Slc.* Pumpkin Festival x *Pot.* Siu Sunset	Hircheng
Rosella Cheer	*Blc.* California Girl x *Pot.* Dal's Emperor	Rosella Orchids
Rosella Rosebud	*Blc.* Rosebud x *Sc.* Lana Coryell	Rosella Orchids
Rosella's Free Gypsy	*Pot.* Free Spirit x *Blc.* Momilani Rainbow	Rosella Orchids
Royston Frolic	*Slc.* Katie's Cutie x *B. nodosa*	Porter's Orch.
Shinfong Eye	*Blc.* Sweet Anniversary x *Pot.* Tzeng-Wen Lisa	W-C.Hung
Shinfong Melody	*Pot.* Red Crab x *Lc.* Tainan City	W-C.Hung
Siu Sunset	*Pot.* Gordon Siu x *Lc.* Waianae Sunset	Hircheng(O/U)
Solid Gold	*Pot.* Twentyfour Carat x *Blc.* Love Sound	F.Clarke
Starry Knight	*Pot.* Allspice x *C.* Seagulls Black Knight	F.Fordyce
Sweet Cherry	*Slc.* Precious Stones x *Pot.* Sally Taylor	F.Fordyce
Tzeng-Wen Bacia	*Pot.* Little Toshie x *Blc.* Chunyeah	Ching-Tien Wong
Vacation Park	*Slc.* World Vacation x *Blc.* Satomi	Suwada Orch.
Victorian Beauty	*Pot.* Vallespin x *Lc.* Irene Finney	Suwada Orch.
Village Chief Discovery	*Blc.* Tzeng-Wen Beauty x *Slc.* Little Fairy	Chih-Cheng Chen
Volcano Sound	*Blc.* Love Sound x *Pot.* Hisako Akatsuka	Suwada Orch.
Wan Luan Emperor	*Slc.* Lani Bird x *Blc.* Chen's Ruby	Chen Chu Chen
Wan Luan Prince	*Blc.* Bryce Canyon x *Slc.* Lani Bird	Chen Chu Chen
Wan Luan Super Rose	*Pot.* Wan Luan Emperor x *Pot.* Kat Sky Song	Chen Chu Chen
Yuan Nan Jin	*Pot.* Thi-Ti x *Bl.* Richard Mueller	V.Boonyuenvetwat
RENANTANDA		
Ladda Glow	*V.* Denis Child x *Ren. storiei*	Laddaland
RHYNCHORIDES		
Alice's Wally	*Aer.* Korat Koki x *Rhy. coelestis*	Alice's Orch.
SCHOMBOCATTLEYA		
Abraham's Urimare	*Schom. fimbriata [amazonica]* ¶ x *C.* Gigi	A.Jesurún
SOPHROCATTLEYA		
Rosa de Corrientes	*C. walkeriana* x *S. wittigiana*	E.A.Finkelstein(E.A.Flachsland)
SOPHROLAELIOCATTLEYA		
Barzac	*Lc.* Barbara Ann Bensch x *Slc.* Anzac	Thornton's Orch.
California Vintage	*Lc.* Mini Purple x *Slc.* Brandywine	F.Fordyce
Carolyn Livengood	*Slc.* Circle of Life x *Slc.* California Vintage	F.Fordyce
Cherri Brandy	*Slc.* Brandywine x *Lc.* Summerland Girl	R.Shaw(O/U)
Fairy Zac	*Sc.* Fairyland x *Slc.* Anzac	Suwada Orch.
Imperial Circle	*Lc.* Imperial Torch x *Slc.* Circle of Life	F.Fordyce
Lone Star Blonde	*Slc.* Tangerine Imp x *Sc.* Petite Pride	O.Garrison(H & R)
Quadzac	*Lc.* Quadroon x *Slc.* Anzac	A.Gavurin(O/U)
Rosella Jewel	*Slc.* Tangerine Jewel x *Sc.* Dal's Good One	Rosella Orchids
SPATHOGLOTTIS		
Vida Wilson	*Spa.* Menehune x *Spa. kimballiana*	Ted Green
TOLUMNIA		
Lacey Lady	*Tolu.* [*Onc.*] Catherine Wilson x *Tolu.* [*Onc.*] Luauki	G.Monnier
Luauki	*Tolu.* [*Onc.*] Sunset Luau x *Tolu.* [*Onc.*] Waikiki Sunset	G.Monnier(O/U)
VANANTHOPSIS		
Khoo Chin Hean	*Sarc.* [*Vdps.*] *warocqueana* x *V.* Chao Praya Sapphire	Singapore Bot.Gdns
VANDA		
Adele Graham	*V.* Georgia Tasker x *V.* Robert's Delight	R.F. Orchids
Barbara Ornest	*V.* Boonchoo x *V.* Kretcant	R.F.Orchids
Denis Child	*V. denisoniana* x *V.* Rothschildiana	Laddaland(O/U)
Gloriana	*V.* [*Ple.*] *teres* x *V.* Rosalia	E.Liman(Khoe May Seng)
Henry Whitesell	*V.* Tan Chay Yan x *V.* Robinson's Tank	Mrs H.Whitesell
Honozeri	*V.* Tatzeri x *V.* Honolulu	L.Suzuki(O/U)
Laura Bush	*V.* Fuchs Beauty x *V.* Robert's Delight	R.F. Orchids
Meriati Hoegeng	*V.* Gloriana x *V.* President Quirino	E.Liman
Peregrina Lorenzo	*V.* Lumpini Red x *V. coerulea*	M.Arciaga(S.Somboonphon)
President Quirino	*V.* Helen Adams x *V.* [*Eua.*] *sanderiana*	S.Kassan(E.Liman)
Ratchaburi Blue	*V.* Sirilak x *V. coerulea*	T.Rodsawad
Ratchaburi Blue Stars	*V.* Kretcant x *V.* Doctor Anek	T.Rodsawad
Ratchaburi Dang Delight	*V.* Thong Chai x *V.* Simirun	T.Rodsawad
Ratchaburi Red	*V.* Doctor Anek x *V.* Bangyikhan Red	T.Rodsawad
Robinson's Tank	*V.* Caroline J. Robinson x *V.* Memoria G. Tanaka	Mrs H.Whitesell(O/U)
Sawita Blue	*V.* Memoria Katherine McCartney x *V. coerulea*	S.Diteeyont
Shirley Suzuki	*V.* Honozeri x *V.* Eisenhower	L.Suzuki(M.Nirei)
VANDORITIS		
Kissiable	*Dor. pulcherrima* x *V.* Ubangi	June Fowler(J.Vande Weghe)
VASCOSTYLIS		
Firuz	*V. tessellata* x *Vasco.* Broga Bluebell	A.W.Nurbaiti(Serdang)
Kho Teng's Fantasy	*Vasco.* Chili Padi x *Vasco.* Tham Yuen Hae	Kok Key Lum(Serdang)
Senga Nasaus	*Vasco.* Susan x *Vasco.* Agnes Hasagawa	F.W.Wright(O/U)
Vanity Fair	*Vasco.* Senga Nasaus x *Ascda.* Peggy Foo	F.W.Wright(J.Hanes)
VAUGHNARA		
Walnut Valley Star	*Epi. ciliare* x *Bc.* Star Ruby	Rinke&Thompson
VUYLSTEKEARA		
Alice Walker	*Vuyl.* Memoria Mary Kavanaugh x *Oda.* Mono Lake	D.W.Smith(Brookside Ghs.)
WILSONARA		
Maco	*Onc.* Francisco Pons x *Oda.* Koo-wee-rup	Everglades
Red Letter Day	*Oda.* Shine Gate x *Wils.* Lisa Devos	E.J.Hildrum(Brookside Ghs.)
ZYGOPABSTIA		
Belle Glade	*Z.* Blue Eyes x *Zba.* [*Zcx.*] Leopardinus	Everglades

*New or new to registration, intergeneric hybrid genus with abbreviation (in square brackets after the genus name) for the following combinations. The botanical authority follows each component genus.
Galeonisia [*Gln.*] G.Monnier & J.M.H.Shaw = *Aganisia* Lindl.x *Galeottia* A.Rich. Br-gp 6., appears in New Hybrids List *Orch. Rev. Suppl.* 112(1258): 55 (July 2004), without formal publication.
Keferollea [*Krl.*] = *Bollea* Rchb.f. x *Kefersteinia* Rchb.f.
Maechtleara [*Mta.*] G.Monnier & J.M.H.Shaw = *Batemannia* Lindl. x *Galeottia* A.Rich. x *Zygopetalum* Hook., Br-gp 6, named for the late John Maechtle.
Seraphrys [*Sry.*] = *Ophrys* L. x *Serapias* L. This nothogenus is established to accommodate an unregistered grex (*Serapias lingua* x *Ophrys scolopax* [syn. *Oph. speculum*]) illustrated in OSGBJ 53(3): 123 (2004).

¶ Species appearing for the first time as parents in registration: ***Batemannia armillata*** Rchb.f.; ***Clowsia glaucoglossa*** (Rchb.f.) Dodson; ***Lycaste reichenbachii*** Gireoud ex Rchb.f., syn. *Ida reichenbachii* (Gireoud ex Rchb.f.) A.Ryan & Oakeley; ***Oncidium leleui*** R.Jiménez & Soto Arenas, syn. *leulei* orth. error; ***Oncidium raniferum*** Lindl.; ***Paphiopedilum hangianum*** H.Perner & O.Gruss, syn. *Paph. singchii* Z.J.Liu & J.Y.Zhang; ***Schomburgkia fimbriata*** (Vellozo) Hoehne, syn. *Schom. amazonica* Hoehne in sched.

CORRECTIONS

Baptioda [*Bpd.*] appears by error as *Baptodia* in *Orch. Rev. Suppl.* 112(1258): 61 (July 2004). The correct spelling appears on p. 50.
Odontostele [*Ots.*] = *Odontoglossum* x *Rhynchostele* in *Orch. Rev. Suppl.* 112(1257): 40 (May 2004) was omitted from the list of new hybrid genera.

Under *Epicyclia* Julieta (*Orch. Rev. Suppl.* 112(1258): 55 (July 2004), *Epi.* [*Epc.*] Estrella Fugaz should read *Cty.* [*Epc.*] Estrella Fugaz.

Sophrocattleya Ramona's Fantasy appeared in *SLOH Addendum 1991-1995*: 1023 as *Sophrolaeliocattleya*. Please correct the genus.

SANDER'S LIST OF ORCHID HYBRIDS Addendum 2002-2004
Plans are now underway to produce the next three year addendum, hopefully by mid 2005.
Any corrections to registrations made during the period 1st January 2002 to 31st December 2004, and any registrations for inclusion in this volume must reach the Registration Office by 31st December 2004, if they are to be included.
Orchid Societies and others wishing to place bulk orders of the Addendum at a pre-publication price should contact Simon Maughan, RHS Publishing, Vincent Square, London, SW1P 2PE, UK. Simonmaughan@rhs.org.uk Tel. +44 (0)20 7821 3064. Fax. +44 (0)20 7821 3020.

New Quarterly Addendum to the Register of Orchid Hybrids
This issue will be the last bimonthly list as a Supplement to the *Orchid Review*. Commencing in 2005 the list of new hybrids will be published four times a year as the *Quarterly Supplement to the International Register and Checklist of Orchid Hybrids*. It will still be available as an optional extra to an *Orchid Review* subscription. This brings publication of registered orchid hybrids more into line with other international registers maintained by the RHS. It is anticipated that the first *Quarterly Supplement* will be issued with the March 2005 *Orchid Review* and contain registrations received during mid-September to 31st December 2004. Thereafter publi-

cation is expected in July, September and November.

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The Registration application form may be downloaded for use, and the Register may be searched on-line at www.rhs.org.uk/research/registration_orchids.asp

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REGISTRAR'S NOTES

Notes on previously refused registrations in *Phalaenopsis* group.

Due to unquestioning acceptance of unfortunate advice from ORAC offered to past registrars, there is now considerable confusion concerning the parentage of *Phalaenopsis* greges made with parents previously lumped into *Phal. lueddemanniana* and *Phal. violacea*. Herman Sweet, quoted in Christenson's *Phalaenopsis Monograph* (2001: 133) wrote, 'This simplistic approach raises havoc with the scientific nomenclature as well as producing a situation in which highly heterogeneous and different hybrids must be called by names which do not reflect their true parentage and genealogy.' To which Christenson adds, 'It is hoped that this situation will change as the species of this complex are increasingly used to produce new directions in hybridization.' The main problem areas have been with:

Phal. lueddemanniana Prior to 2002, *Phal. hieroglyphica, pallens, pulchra* and *reichenbachiana* were treated as synonyms, whereas *Phal. fasciata* was treated as distinct for registration. All are now accepted as grex parents.
Phal. violacea Prior to 2002 *Phal. bellina* was treated as a synonym, as *Phal. violacea* var. *bellina* or 'Borneo Form'. Hybrids made with *Phal. bellina* can be identified by the lower half of the lateral sepals being more darkly coloured (usually dark pink) compared to the upper halves (usually light yellow to cream), a trait inherited from *Phal. bellina.*

In order to begin to set the record straight, early hybrids involving the above parents that were rejected by the then registrar have now been registered and their details provided below. It is hoped that by making dates available and indicating the grex name under which the registrar lumped them, they may be traceable where they have been used in breeding under another name. Since many registered grex names in this group actually apply to two or three separate greges (E.g. Donna Louise gx and Fintje Kunriawati gx included in Luedde-violacea gx), it is not possible to simply change the parentage in the register and use the same name. Therefore the names already registered will stand with their registered parentage. However, registrations of new names that may now be needed for their progeny will be registered free of charge for anyone who is willing (and brave enough) to re-register their *Phalaenopsis* crosses under the correct parentage. For example, recently *Phal.* Gigabell was registered by P. Lippold as *bellina* x *gigantea*, while *Phal.* Mok Choi Yew had been previously registered in 1964 by C.Y. Mok as *violacea* x *gigantea.* It now transpires that the original *Phal.* Mok Choi Yew was made using *bellina* x *gigantea*. However we cannot be sure that all plants labeled Mok Choi Yew gx are of this parentage, as the grex may have been remade since using genuine *violacea* x *gigantea.* Consequently it would be unwise to simply change the registered parentage of Mok Choi Yew and treat Gigabell as a synonym. Under the ICNCP a grex name is defined by the recorded parentage and hence both grex names are established and available for use. What is important is the application of the appropriate grex name to the correct plant. Similarly, *Phal.* Lydia Tobia is registered as *bellina* x Deventeriana, while *Phal.* Sweet Memory was registered in 1982 as Deventeriana x *violacea*. Once again Sweet Memory was originally made using *bellina* x Deventeriana.
Further to this, the book *The New Phalaenopsis of Taiwan in 1993* (Special edition) illustrates several hybrids which appear to have been made twice with both *Phal. violacea* and *Phal. bellina,* and another parent, but which are grouped under the same grex name. These include, Chiayi Yellow Green gx, Grosbeak gx, Harford's Jewel gx, Princess Violet gx, and Princess Kaiulani gx. Thanks to Robert-Jan W. Quené for kindly bringing this to my attention.

P1. Annie Van Tweel. Made 5 Mar 1980; f.fl. 30 Sep 1983; application from 1983, included in Oliver gx.
P2. First Independance Day. Made Jun 1971; f.fl. Mar 1975; application from 1975.
P3. Mary Ann Lowe. Made May 1982; f.fl. Mar. 1986; application from June 1986.
P4. Shim Beauty. Made 12 Jan 1981; f.fl. 25 Sep 1984; application from Dec 1984.
P5. Wossie Amarillo. Made 1980; f.fl. 1984; application from Oct. 1984.
P6. Hot Lip. Made 22 Feb 1965; f.fl. 19 Aug 1970; application from March 1972.
P7. Arthur Freed's Criterion. Made 1971; f.fl 1975; application from Apr. 1975, previously included in Touch of Lemon gx..
P8. Bahia. Made Nov. 1967; f.fl. Jan. 1970; application from May 1970, previously included in Inspiration gx.
P9. Big John. Made Apr. 1979; f.fl. Mar. 1982; application Mar. 1982.
P10. Bokay Beauty. Made Oct. 1981; f.fl. Sept. 1985; application from June 1986.
P11. Ceredwyn Anne. Made 26 Jun 1973; f.fl. 1 Jul 1977; application from 1977.
P12. Chester Hills. Made Aug. 1967; f.fl. Sept. 1970; application from Mar. 1971, previously included in Spotted Moon gx.
P13. Cynthia Ai. Made July 1976; f.fl. Apr. 1979; application Mar. 1980.
P14. Dave Higley. Made Apr. 1976; f.fl. Mar. 1980; application May 1980.
P15. Donald Perry's Fort. Made July 1968; f.fl. Apr. 1972; application from Apr. 1972.
P16. Donna Louise. Made Aug. 1967; f.fl. Aug. 1973; application from Aug. 1973, previously included in Luedde-violacea gx.
P17. Eda Conklin. Made Apr. 1965; f.fl. Feb. 1969; application from May 1970.
P18. Eureka's Gold. Made Jan 1983; f.fl. Feb 1985, flowers clear yellow.
P19. Fintje Kunriawati. Made 2 Feb 1982; f.fl. 25 Oct 1985; application from 1985, previously included in Luedde-violacea gx.
P20. Freed's Malibu Fascination. Made 1972; f.fl. 1976; application from Dec. 1976, previously regarded as a line bred *Phal. lueddemanniana.*
P21. Frenchy's Plastic Yellow. Made 1979; f.fl. May 1987; application from 1988, included in Ambomanniana gx. Also made in 1984; f.fl. 1986 by G & B Orchid Lab.
P22. Gold Veins. Made Oct. 1963; f.fl. Aug. 1968; application from Feb. 1975, previously regarded as line bred *Phal. lueddemanniana.*
P23. Golden Star. Made 18 Jun 1964; f.fl. 8 Jan 1967, previously included in Nemesio Mendiola gx.
P24. Hannah Mae Ho. Made 7 Apr 1970; f.fl. 5 Feb 1982; application from Mar 1983.
P25. Hausermann's Borneo Fantasy. Made Oct 1968; f.fl. Feb 1972; application from 1972, previously included in Bettylee Burke gx.
P26. Hawaiian Moonlight. Made Jan 1974; f.fl. Mar 1977; application from 1977.
P27. Herman Sweet. Made Sep 1963; f.fl. Jun 1969; application from 1969, previously included in El Tigre gx.
P28. Irene Pendzialek. Made Feb. 1976; f.fl. July 1980; application Sep. 1980.
P29. Jet Setter. Made Aug. 1967; f.fl. Apr. 1971; application from May 1971, previously included in Ruby Rains gx.
P30. Joshua Irwin Ginsberg. First made 27 Nov 1980, f.fl. 11 Dec 1984, by Herman Wihardjo, Indonesia, and treated as part of Penang Girl gx.
P31. Kapiolani. Made Mar. 1974; f.fl. Mar. 1977; application Mar. 1979.
P32. Kathinka. Made 1974; f.fl. 1977; application from 1977.
P33. Lani Rose. Made 3 Jul 1973; f.fl. 15 Aug 1977; application from 1977.
P34. Lin Huong Sen. Made 15 Jan 1980; f.fl. 15 Sep 1983; application from 1984, included in Grosbeak gx.
P35. Little Boy. Made Sep. 1982; f.fl. July 1986; application July 1986.
P36. Marian's Delight. F.fl. 5 Jun 1986; application from 1986.
P37. Mariechan Bach. Made 27 Jun 1970; f.fl. 27 Apr 1979; application from 1979, previously included in Tigress gx.
P38. Oscar's Lucifer. Made May 1965; f.fl. Mar. 1969; application May 1970.
P39. Paifang's Silver. Made 20 Mar 1977; f.fl. 15 Apr 1980; application from 1982, previously included in Star Burst gx.
P40. Palacea. Made Sep 1969; f.fl. Oct 1973; application from 1973, previously included in Luedde-violacea gx.
P41. Pamasue. Made 1964; f.fl. 10 Sep 1969; application from Oct 1969.
P42. Pancawarna. Made 15 Dec 1978; f.fl. 29 Feb 1983; application from 1983, included in Golden Taiwan gx.
P43. Pele. Made in 1957, was previously included in Mahinhin gx., and is an unregistered synonym of *Phal.* Memoria Hans-Werner Pelz gx .
P44. Peppermint Pat. Made 1977; application from 1987, previously included in Eleanor Sidney gx.
P45. Perle du Leman. Made Feb 1976; f.fl. Mar 1980; application from 1982.
P46. Ping Ping. Made Mar. 1969; f.fl. Feb. 1973; application from Feb. 1973, previously included in Goldiana gx.
P47. Polar Hieroglyph. F.fl. Mar 1980, application from 1983, previously included in Richard Kirakofe gx.
P48. Redazzle. Made 10 Aug 1978; f.fl. 6 Mar 1987; application from 1987, included in Magenta Magic gx.
P49. Ruby Comet. Made 29 Mar 1983; f.fl. 10 May 1987; application from 1987.
P50. Shaffer's Temptress. Made Apr. 1973; f.fl. May 1976; application from May 1976, previously included in Noel N. Songer gx.
P51. Shining White. Made Feb. 1979; f.fl. Nov. 1981; application from Dec. 1982.
P52. Starke's Pot-pourri. Made Apr. 1976; f.fl. Mar. 1980; application Sep. 1984.
P53. Su-An Blonde. Made 3 Aug 1970; f.fl. 15 Mar 1976; application from 1986, previously included in Paifang's Chrysolite gx.
P54. Sunrise Over Hawaii. Made Jan. 1974; f.fl. Mar 1977; application from 1977.
P55. Suzy Bridges. Made Mar. 1978; f.fl. Feb. 1981; application Apr. 1981.
P56. Tutone. Made 1967; f.fl. Apr 1974; application from Apr 1974, previously included in Kathleen Edris gx.
P57. Twinkle-Toes. Made 1971; f.fl. Oct. 1975; application from 1975.
P58. Wolfsburg. Made 14 Apr 1976; f.fl. Jan 1980; application from Apr 1981.
P59. Yeap Eng Sim. Made Apr. 1968; f.fl. Aug. 1970; application from Dec. 1970.
P60. Kissiable. Made 22 Feb 1965; f.fl. 12 Jun 1970; application from March 1972.

While every effort has been made to use the original choice of grex name, due to the many registrations since these older applications, some names have been duplicated. The registration staffs have replaced these with modified forms. Any registrant wishing to change one of these names should contact the registration office with a suitable alternative name as soon as possible. Due to the large number of older registrations and the time elapsed it has not been practical to contact each registrant concerning their past registrations. The registrar would like to apologize for any distress or inconvenience this may have caused, and will be pleased to adjust any of the above registrations at the request of the registrant, within the limitations of the ICNCP.

***Laeliocattlea* McBeaniana** was registered with *L. anceps* 'Schroderae' as a parent. This taxon belongs to *L. anceps* ssp. *dawsonii* f. *chiapensis* Soto Arenas, and is now entered in the register under *L. dawsonii.* See Halbinger & Soto, Laelias of Mexico, *Orquidea* (Mex.) 15: 71 (Oct. 1971).

Changes in *Odontoglossum*

Odm. pescatorei Linden, 1852, has been replaced by *Odm. nobile* Rchb.f., 1849.
Odm. triumphans Rchb.f., 1854, has been replaced by *Odm. spectatissimum* Lindl., 1852.

Duplication of grex names in *Oncidium* group.

The following grex names have been found to be duplicated. They will be distinguished by the addition of a suffix (in parentheses) indicating originator or date of registration as follows:

Miltonidium Bartley Schwarz (Staal) = *Milt.* [*Mps.*] Hamburg x *Onc.* [*Odm.*] *cariniferum*
Miltonidium Bartley Schwarz (Beall) = *Milt.* [*Oip.*] Red Pali x *Onc.* Honolulu

Odontocidium Puget Sound (Beall) = *Odm.* Baranof Island x *Onc. crispum*
Odontocidium Puget Sound (Moir) = *Onc.* Surprise x *Odm.* Mount Baker

Oncidium Dennis Kleinbach (July 1991) = *Onc.* Jamie Sutton x *Onc. leucochilum*
Oncidium Dennis Kleinbach (October 1991) = *Onc.* Sarcatum x *Onc.* Costa Rica

Oncidium [*Colm.*] Shower of Gold (Beall) = *Onc.* [*Odtna.*] Debutante x *Onc.* [*Mtdm.*] Summer Fantasy
Oncidium Shower of Gold (Hughes) = *Onc.* River of Gold x *Onc.* Sultamyre

Oncidium [*Mtdm.*] Yellow Fantasy (Richella) = *Onc.* [*Mtdm.*] Talofa x *Onc.* Gardneri
Oncidium Yellow Fantasy (Perreira) = *Onc. viperinum* x *Onc. marshallianum*

Trichocentrum [*Onc.*] Teddy Bear (Crocker) = *Trt.* [*Onc.*] Chet Wheelock x *Trt.* Chet Wheelock
Trichocentrum [*Trcdm.*] Teddy Bear (Vagner) = *Trt. tigrinum* x *Trt.* [*Onc.*] *lindenii*

Wilsonara Lava Flow (Rehfield) = *Oda.* Taw x *Wils.* Spaceman
Wilsonara [*Burr.*] Lava Flow (Black) = *Wils.* [*Burr.*] Imperial Eruption x *Oda.* Red Perry

Wilsonara Lyoth (1947) = *Oda.* Venusta x *Onc. claesianum*
Wilsonara [*Burr.*] Lyoth (1936) = *Oncda.* [*Cha.*] Nobilis x *Odm.* Felicia

A replacement name for *Opsisanda* [Opsis.]
Vanvanda [*Vvd.*] = *Vanda* Jones ex R.Br. x *Vandopsis* Pfitzer. A replacement name becomes necessary since *Opsisanda* does not conform to ICBN Art. H6.2. The following nothogeneric names are also synonyms.
Opisanda. An orthographic error for *Opsisanda*. See Moir in *Bull. Pacific Orch. Soc. Hawaii* 14: 83 footnote (1957).
Opsisanda D.Sander in *Orch. Rev.* 57: 24 (Feb. 1949). Hawkes, *Enc. Cult. Orc.* 1965: 528 gives Tanaka (1947). Contrary to Art. H6.2.
Tanakara [Ta.] B.Tanaka & D.Sander in *Orch. Rev.* 55: 120 (Sept. 1947). Hawkes, *Enc. Cult. Orc.* (1965): 529 gives Tanaka (1951). Contrary to Art. H6.2.
Vandopsisvanda [Vv.] in *Rev. Circ. Paul. Orch.* 7: 219 (1950). Contrary to Art. H6.2.

Additional nothogenera for future use.
Most of the following new nothogenera are published to facilitate the eventual acceptance of *Miltoniopsis* as distinct from *Miltonia*.
Aspasiopsis [*Apo.*] = *Aspasia* Lindl. x *Miltoniopsis* God.-Leb.
Bonplandara [*Bnp.*] = *Cuitlauzina* La Llave & Lex. x *Cochlioda* Lindl. x *Miltonia* Lindl. x *Odontoglossum* Kunth x *Oncidium* Sw. Named for Amié J. Bonpland (1773-1858).
Brasadastele [*Bdt.*] = *Ada* Lindl. x *Brassia* R.Br. x *Rhynchostele* Rchb.f.
Brascidostele [*Bcd.*] = *Brassia* R.Br. x *Oncidium* Sw. x *Rhynchostele* Rchb.f.
Brassopsis [*Brp.*] = *Brassia* R.Br. x *Miltoniopsis* God.-Leb.
Brassostele [*Bst.*] = *Brassia* R.Br. x *Rhynchostele* Rchb.f.
Claudegayara [*Cgy.*] = *Cochlioda* Lindl. x *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth x *Oncidium* Sw. Named for Claude Gay (1800-1873).
Commersonara [*Cmm.*] = *Cochlioda* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth x *Zelenkoa* M.W.Chase & N.H.Williams. Named for Philbert Commerson (1727-1773).
Cochliodopsis [*Cdp.*] = *Cochlioda* Lindl. x *Miltoniopsis* God.-Leb.
Cochloncopsis [*Ccp.*] = *Cochlioda* Lindl. x *Miltoniopsis* God.-Leb. x *Oncidium* Sw.
Cyrassostele [*Crs.*] = *Brassia* R.Br. x *Cyrtochilum* Kunth x *Rhynchostele* Rchb.f.
Cyrtolioda [*Crl.*] = *Cochlioda* Lindl. x *Cyrtochilum* Kunth
Endlicherara [*Edl.*] = *Aspasia* Lindl. x *Brassia* R.Br. x *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth. Named for Stephan F. L. Endlicher (1804-1953).
Forsterara [*Frs.*] = *Brassia* R.Br. x *Cochlioda* Lindl. x *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth. Named for Johann R. Forster (1729-1798).
Frezierara [*Frz.*] = *Aspasia* Lindl. x *Cochlioda* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth. Named for Amédée F. Frezier (1682-1773).
Ganginia [*Ggn*] = *Gongora* Ruiz & Pav. x *Paphinia* Lindl. Br-gp. 5.
Humboldtara [*Hmb.*] = *Cuitlauzina* La Llave & Lex. x *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth x *Oncidium* Sw. Named for Alexander von Humboldt (1769-1859).
Hyedecromara [*Hcm.*] = *Comparettia* Poepp. & Endl. x *Oncidium* Sw. x *Rodriguezia* Ruiz & Pav. x *Zelenkoa* M.W.Chase & N.H.Williams. Namde for Jules Hye de Crom of Belgium (fl. 1898)
Kunthara [*Knt.*] = *Cochlioda* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth x *Oncidium* Sw. Named for Karl S. Kunth (1788-1850).
Lawlessara [*Law.*] = *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth x *Oncidium* Sw. Named for Gerald M. Lawless.
Lockoglossum [*Lkg.*] = *Lockhartia* Hook. x *Odontoglossum* Kunth
Martiusara [*Mtr.*] = *Brassia* R.Br. x *Cochlioda* Lindl. x *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth x *Oncidium* Sw. Named for Carl F. Martius (1794-1868).
Milmilcidium [*Mmc.*] = *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Oncidium* Sw.
Milmilodia [*Mmo.*] = *Cochlioda* Lindl. x *Miltonia* Lindl. x *Miltoniopsis* God.-Leb.
Milmiloglossum [*Mmg.*] = *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth
Milonzina [*Moz.*] = *Cuitlauzina* La Llave & Lex. x *Miltonia* Lindl. x *Oncidium* Sw.
Odonchlodiopsis [*Ocp.*] = *Cochlioda* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth
Odontiopsis [*Otp.*] = *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth.
Odontostele [*Ots.*] = *Odontoglossum* Kunth x *Rhynchostele* Rchb.f.
Oncidodontopsis [*Odd.*] = *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth x *Oncidium* Sw.
Oncidopsis [*Oip.*] = *Miltoniopsis* God.-Leb. x *Oncidium* Sw.
Pavonara [*Pvn.*] = *Aspasia* Lindl. x *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth. Named for José A. Pavón (1754-1844).
Philippiara [*Phl.*] = *Cochlioda* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth x *Rhynchostele* Rchb.f. Named for Rudolph Amandus Philippi (1808-1904).
Poeppigara [*Ppg.*] = *Brassia* R.Br. x *Cochlioda* Lindl. x *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth. Named for Eduard F. Poeppig (1798-1868).
Reichara [*Rec.*] = *Aspasia* Lindl. x *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Oncidium* Sw. Named for Karl F. Reiche (1860-1929).
Rhytoniglossum [*Rtg.*] = *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth x *Rhynchostele* Rchb.f.
Ruizara [*Ruz.*] = *Brassia* R.Br. x *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth. Named for Hipolito Ruiz (1754-1815).
Sceloglossum [*Sgl.*] = *Scelochilus* Klotzsch x *Odontoglossum* Kunth.
Solanderara [*Slr.*] = *Brassia* R.Br. x *Cochlioda* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth. Named for Daniel C. Solander (1733-1782).
Spruceara [*Spr.*] = *Cochlioda* Lindl. x *Miltonia* Lindl. x *Miltoniopsis* God.-Leb. x *Odontoglossum* Kunth. Named for Richard Spruce (1817-1893).
Tolumnopsis [*Tmp.*] = *Tolumnia* Raf. x *Miltoniopsis* God.-Leb.
Triodoncidium [*Tcd.*] = *Odontoglossum* Kunth x *Oncidium* Sw. x *Trichocentrum* Poepp. & Endl.

Julian M. H. Shaw, RHS Senior Registrar for Orchid Hybrids.

Reprinted from "The Orchid Review" (U.K.)

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AOR 123

Australian Natives

Heading into another summer with reduced water supplies is not what anyone wants. Further restrictions could be introduced to conserve existing supplies for years to come.

I'm lucky enough to live where there are no restrictions and no indication they'll be necessary in the near future. We have recently had good rain but it didn't last. Just a week later the soil, which is sandy, was bone dry in many parts of the garden. Many of my natives were quite dry too and need the usual watering.

While a downpour is a great relief it doesn't seem to be having any lasting effect. To make the best use of all water growers will need to find ways to reduce evaporation around their plants and keep humidity up in the growing area. A fine media could help but be cautious as damage to roots can occur if the natives don't like any of the ingredients or the pots stay too wet. Fine media such as perlite or vermiculite have been used a media in the past. Reducing wind flow through the growing area will help keep humidity levels up but damp, stagnant conditions are ideal for fungal and bacterial problems to flourish.

Remember that many natives are quite tough and will last quite well if only watered every few days. Just look at the origins of the plant to see what you can expect. Any plant that are weak might not be worth the effort unless they are divisions of historically important plants or part of a breeding programme where they introduce special qualities to the blooms (and not weak plants). Species of *Bulbophyllum* and some Sarcanthinae have high water requirements and anyone growing these plants will have to provide a lot of care to keep them thriving.

Keep your pots free of weeds of any kind, including ferns. The roots take up water and the competition will weaken the orchid. Pot any suitable ferns and plants and keep them in the growing area. They add to the microclimate.

Don't over-fertilise. If you are hand watering from sprayers the temptation to add fertiliser will be great. Inorganic fertiliser can create a build-up of salts in the media which could be toxic to your natives. A lot of water is needed to flush it out of pots. Use organic fertilisers, and be careful not to overdo it.

Sealed houses could create a dilemma. You could move plants into the shade house to take advantage of any rain – or seal the house to keep up humidity and circulate air with fans. It will depend on the plants you have, but be sure they have water enough as this is the tropical wet season and these plants will expect more water.

In bloom over summer are a range of the more interesting natives well worth a look if you get the chance. *Sarcochilus ceciliae* and *Dendrobium monophyllum* can be expected to produce flowers now along with some of those mixed cool-tropical hybrids that can bloom for extended period at any time of the year.

Cattleyas

Dividing and repotting your catts should have your undivided attention. If you have the facilities you should hang your catts in a shade house covered in 70% shade cloth. The fresh air will keep your plants very happy. If hung, they seem to have less bulb or root rot problems.

Water weekly and fertilise weekly with a good organic such as MAJOR CARP®. You can alternate the MAJOR CARP® with MERRI FERT. It is a good idea to give your catts a foliar spray with CALCIUM BIOMIN once per month. Do not mix the BIOMIN with any fertiliser. Spray on its own.

Watch for scale. If present spray with ANTI-SCALE®. For fungus – drench with ANTI-ROT®. A light top dressing with worm castings works wonders to newly potted catts.

Cymbidiums

At last your repotting and dividing should be over. All plants should be in their neat rows. Two hundred ml pots should be two hundred mls apart in all directions. This gives plenty of light to get around the bulb area – good ventilation to help keep bulb rots under control – easier to top dress and also it is far easier to spray up under the plant leaves if you get a problem.

Now is the time to deflask that flask you bought earlier this year. Before taking the babies out into the big wide world, give plants a light misting with ENVY®. This will slow the transpiration rate down. After a couple of weeks you can give the little babies a light misting with MERRI FERT at 0.5gm/litre. To this, add some SUPERTHRIVE® at label rate. Remember – not too much light or the babies will burn.

As most of Australia is in drought, be careful with your watering. A good drenching once

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a week is better than a light piddle every second day. If possible water at dusk for maximum effect of the cooling of the plant and shade house.

Fertilise with a high "K" fertiliser up until the New Year. Peters Excel "high K", Campbells "Yellow" HSO 12 and the use of MERRI FERT is recommended. It is a good idea to fertilise weekly during the warmer weather. In January you will have to change over to the use of a general purpose fertiliser. Small non flowering cymbids can be fertilised weekly with a good organic, alternated with MERRI FERT or PETERS GENERAL PURPOSE.

Inspect plants weekly to make sure you have no two spotted mites under the leaves. If they are a problem a coupe of applications of ECO OIL or a mixture of NATRASOAP® and SPRAYTECH OIL® seven to ten days apart should help to control them. A monthly drench with AGRIFOS® is essential during the summer season to help control bulb rots. A maintenance programme to control leaf spots is essential. MANCOZEB or THIRAM are two good fungicides that have proved themselves to control leaf spot.

If you have any seed capsules hanging, spray with CARBARYL to help keep dendrobium beetle off the capsules.

Paphiopedilum

Any outstanding repotting should be attended to early during this period as paphs. really do not like very hot weather and there is no sense in adding the stress of repotting to the stress caused by heat.

The early part of this period is the time to attend to shading. Look for areas of clear glass and spots where the sun shines through open vents. The best conditions are really obtained when extra shade is added during summer and largely removed during winter. If you follow this practice the shade should be in place by now. If, however, you just add a bit extra shade during summer this is the time to do it. Overlong leaves which tend to hang over the side of the pot are a sign of too much summer shade; short, upright, yellowish leaves indicate too little.

Regular watering and fertilising is the routine for this period of the year. Don't overdo it, even when the weather is hot. If the plants don't need water, and you feel you must do something, simply give them a misting with a fog nozzle. It is a good idea to get to know the weight of a pot when wet and when dry; this way you won't keep the plant too wet. The experienced grower can tell by the look of the plants when he needs to water – the leaves droop ever so slightly. Another good trick is to run your hand over the top of the leaves; when they are turgid they rustle – when they need water they don't.

During very hot weather it is good practice to water during the evening. This helps the night temperature; it also allows the plant to take up and retain water so that it is better prepared for the heat of the next day.

If you strike a plant which is droopy and dehydrated, even though the mixture is obviously moist, the odds are that it has no roots. maybe it has been kept too wet. In any case it should be repotted into fresh mixture, no matter what the season. Repotting is usually sufficient but if you feel there is a major problem, a swim in Fongarid for twenty minutes or so (the plant, that is) will do no harm.

Keep an eye out for mealy bug and treat it early if you find it, as it can spread like wildfire. The only other problem you may strike is a fungal infection which appears in hot, humid weather and seems to affect only green-flowered paphs. This appears as small brown spots which quickly turn to holes through the leaves. The effect is almost as though somebody has fired a shotgun – from some distance – at the plant. This does little harm but it is unsightly. It is easily cleared up with Ciba Geiav Rose spray

Phalaenopsis

Give your phals plenty of fresh air. Make sure vents are wide open during the day. If the air seem stagnant, install a fan to keep the air moving.

You can still repot the over grown plants. All spikes should now be cut back to the first node. This will encourage the plant to send up a new spike or send up a secondary.

Keep plants moist during the summer period Do not let the plants dry out.

If leaves turn yellow – check the roots for insect damage. Look under leaves for mite damage. Spray if necessary. Watch for bacterial spot. Spray with HYSAN or VEBREX "FLORA".

Fertilise weekly with PETERS GENERAL PURPOSE or MERRI FERT. Now is the time to get a good root foundation on the plant, good strong leaves to help keep plants healthy. A little SUPERTHRIVE® in with your fertiliser helps to give your plants a boost.

Watch for sunburn during the hot summer period. In other words, increase shading if necessary.

Vandaceous

Potting:– Potting of small plants can be done at any time. Top any large plants which have become leggy, leaving at least three roots on the top. If possible some leaves should be left on the old stem to encourage kikie growth.

Watering:– Water daily. Keep root system moist with additional misting if necessary.

Light:– Strap leaf vandas and ascocendas need 50 to 70% shade. Other vandas 30%.

Fertiliser:– Fertilise weekly alternating over a four weekly period.

Wk.1. – Inorganic high nitrogen (Campbells B, Aqua feed or Aquasol).
Wk.2. – Wuxall Foliar.
Wk.3. – As for Wk.1.
Wk.4. – Organic (Fish Emulsion or Nitrosol).

Pest Control:– Fungicide every six weeks with Daconil, Mancozeb, Ridomil MZ WP, or Wettable Sulphur.

Use Diazanon, Malathion or Pyrethrum to control scale and insects.

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Do we place too much importance on fertilising?

By Bruce Wood

Recently I was the guest speaker at my local Orchid Society and during my address on the care of *Cattleya* alliance seedlings I made the statement that much, too much, emphasis is placed on fertilising. It certainly raised an eyebrow or two.

A grower walks into a room with this very healthy, well flowered plant and what is the first question asked, "What fertiliser do you use?" or more usually "What do you feed it?" thus totally ignoring all the other aspects of orchid culture. Plants are quite capable of feeding themselves by the manufacture of glucose and sugars through the photosynthesis process. We, by correct culture, are attempting to optimise this process.

Fertilising is no more, or less, important than all the other aspects of orchid culture but it can certainly dominate a conversation between two orchid growers. When one aspect of orchid culture is over emphasised the culture is not balanced, usually to the detriment of the plants. What we are attempting to do by correct culture is to optimise the growing and flowering potential of the plant. The reality is if we get it right most of the time the orchid, or any other flowering plant for that matter, will thank you by providing a wonderful display of flowers.

Let's look at some aspects of culture:

1) Is your orchid collection of a size that is easily managed within your time constraints? Most of us are hobby growers and our hobby should provide us with pleasure not pain. Do you have sufficient time to provide your collection's needs or do you avoid going to your orchid house because all you see is work that requires doing? Plants overgrowing their pots, weeds in pots and in the growing area, pests, evidence of disease, etc. A few well-grown plants, flowering well are much more rewarding than a host of poorly grown and flowering plants.

2) Is the size of your collection suitable for your housing or are your orchids crammed into the growing area with insufficient space between plants to allow ventilation and sunlight to reach each pot?

3) Do you grow genera that are suitable for your climate and your housing or are you attempting the impossible? We all attempt to grow orchids, which have requirements outside our climate range so it is necessary to provide heating and/ or cooling to the growing area. The maintenance of a temperature range, within practical limits, to suit the genera grown should be achieved.

4) Reams of paper have been written on the watering of orchids. When do you water an orchid? The answer is when the orchid requires watering and in any collection of orchids, watering is a compromise as some plants will be too wet, some too dry and hopefully the vast majority will be just right (just like Goldilocks). It is often written that you should water heavily every so often so as to remove any build up of salts. My response to this statement is if it is necessary to water heavily to remove a salt build up you are doing one of three things; you are fertilising at too great a rate or you are fertilising too frequently or both. Water many times more than you fertilise and your plants will benefit. It is also often written that you should fertilise weekly – weakly. I am of the opinion that you fertilise in relation to your watering regime, not just because it is Saturday. I fertilise once and water three or four times before fertilising again, both summer and winter, which automatically reduces fertilising during winter.

5) What is the pH of your water supply, your fertiliser solution and your potting medium? Most town water is alkaline; mine varies between pH 8.00 and pH 8.40. This is beneficial in helping to control the pH of the potting medium when you water more frequently than you fertilise. Most fertiliser solutions are acidic and the plants receive the most benefit if the range is adjusted to between pH 6.5 and pH5.5 as the plants can access the supplied elements. Potting mediums vary in pH with peat moss and coco peat being acidic and bark varying depending upon whether and to what degree it has been treated. Be aware of the consequences of an acidic fertiliser and an acidic potting mix. Take care not to be caught up in potting medium fads. Select a medium that you are comfortable with and do not chop and change frequently. Experiment by all means but with a small number of plants.

6) Do you match your plant size to your pot and potting medium size?

7) Do you have a range of various sized potting mediums suitable for the range of pots you use?

8) Do you have a range of potting mediums to suit the various genera grown?

9) Do you provide the correct style of pot for the genus grown?

10) Do you provide the correct level of sunlight for the genera grown? The correct amount of sunlight for the winter months will be unsuitable for the summer months. Therefore it is necessary to adjust the level of sunlight provided. It has been written that you should give plants the maximum sunlight to a point just short of sunburning. I am of the opinion that this policy is fraught with danger and that plants should be given sufficient sunlight to enable them to flower, which is a totally different philosophy. The provision of too much or too little sunlight will hinder the photosynthesis process, and hence the plant's ability to optimise food production and therefore growth rates.

11) Have you a suitable pest and disease management program in place including a tool sterilising program? And I do not mean you bomb the place every weekend.

12) Do you have a suitable fertilising program? Much has been written on providing a suitable balanced fertilising program. You would be surprised at the growth rates that can be achieved by fertilising at 1/4 strength for bark and 1/8 strength for sphagnum moss every third or fourth watering.

13) Do you provide suitable protection from strong and cold winds, frosts, winter rains and for flowering plants?

14) Correct ventilation of the growing area provides the plants with fresh supplies of carbon dioxide and a defence against fungal diseases. Orchids benefit greatly from moving air for the aforementioned reasons as well as drying the plants after watering, providing water vapour (humidity) and a cooling effect. Epiphytic orchids have the ability to absorb water vapour through their roots. Do you provide the required levels of humidity in your orchid growing area at the right time of the day/ year?

15) Do you hate repotting? I do not think anybody actually loves repotting but if your plants are repotted, as they require repotting, as dictated by growth cycles, and in small groups instead of trying to do half your collection at the one time, it is bearable.

Spend some quality time in your orchid house and whilst there, be observant. You will find the plants that are too wet and either repot them or move them to a more ventilated area and you will water the plants that are too dry. You can stake the new growths upright (where applicable) and the emerging inflorescences as well as removing the sheaths (hiding places for pests). This is early preparation of your plants for the upcoming shows.

Very many articles have been published in this magazine on fertilising, watering and general orchid culture by renowned growers and I would recommend that you research them. Do we place too much importance on the fertilising of orchid plants? I have in the not too distant past, but now I have a much more balanced approach to my culture and my plants are much the better for it.

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Cymbidiums
KING OF THE ORCHIDS

PRESENTED BY THE AUSTRALIAN CYMBIDIUM SOCIETY INC.

Editor's Report

The last issue of Cymbidiums Australia featured an article on *Cym. devonianum* and its hybrids from Grant Cole who lives and grows his orchids in California. In this issue Grant is, once again, featured in these pages with the first part of a two-part article on hybridising. Many of you may remember previous articles from Grant, particularly relating his association with Dr Miles Seton, his interest in our native species *Cym. suave*, and his account of his visit from the USA to see Dr Seton some years ago. I'm sure you'll find Grant's new article most interesting as he has had many years of experience as a hybridiser and *Cymbidium* grower and, although he lives half a world away, his climatic conditions are not unlike those experienced by many Australian *Cymbidium* growers.

It is always interesting to gain an insight into the *Cymbidium* scene in another part of the world and California, USA, has long has strong connections with Australia. The exchange of ideas and information through visiting speakers and nursery persons, and the cross flow of *Cymbidium* hybrids and clones has enhanced the both knowledge of cymbidiums and the variety of types grown in both our countries. Hopefully, through the articles of people such as Grant Cole, these links will remain strong and be to everyone's benefit.

Also covered in this issue are the recent *Cymbidium* shows held at Ararat and The Glen Shopping Centre, both Cymbidium Orchid Society of Victoria shows, although Ararat always draws good representation from interstate growers as well. Carolin Allen has provided the report from The Glen, which is probably the latest *Cymbidium* show in the country as it is staged in early October, a time by which many growers in other states would be well into their dividing and repotting in preparation for the following season. Carolin also gives us some food for though from a judge's perspective relating to the preparation and presentation of plants for show – see what you think.

The editors have taken the opportunity to highlight next year's National Cymbidium Show and, although all the details aren't in hand yet, mark late August on your calendar anyway as 2005 should be something special as it will be the tenth national show and that's something to celebrate. We've also included a few pictures from the very first national show just to jog your memories of that event.

In wrapping up this issue I've compiled a brief view of some of the seedlings we've flowered this season – not the best or worst of them in particular, just a representation of what we've seen this season – and a comparison for those of you who may be flowering some of the same hybrids. Also included are some thoughts on potential at future flowerings as first flowerings are not always a reliable guide.

Anyway, enjoy, and good growing. ■

Rob Smith
Editor.

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HOW TO JOIN A CYMBIDIUM CLUB IN YOUR STATE

CYMBIDIUM CLUB OF AUSTRALIA INC.

Meetings are held on the 2nd Thursday of each month (except December, January and February)
Meetings commence 8.00 p.m.
Venue: Lakemba Chapter Remembrance Hall,
220 Lakemba Street, Lakemba,
Sydney, N.S.W.
For further details contact
Secretary, Peter Moore,
10 Stephanie Street,
Padstow, N.S.W. 2211
Phone: (02) 9721 0572
President, Geoff LeMarne,
Phone: (02) 9449 9648

CYMBIDIUM CLUB OF SOUTH AUSTRALIA INC.

Meetings are held on the 4th Wednesday of each month (except December and January)
Auditorium open from 7.00 p.m. —
Beginners' Group commences 7.20 p.m.
Main Meeting commences 8.00 p.m.
Venue: Burnside Community Centre,
401 Greenhill Road, Tusmore, Adelaide, S.A.
For further details contact
Secretary, Graham Shevlin,
22 Australian Avenue,
Clovelly Park S.A. 5042
Phone: (08) 8276 7652
President, Murray Baulderstone,
Phone: (08) 8276 3771

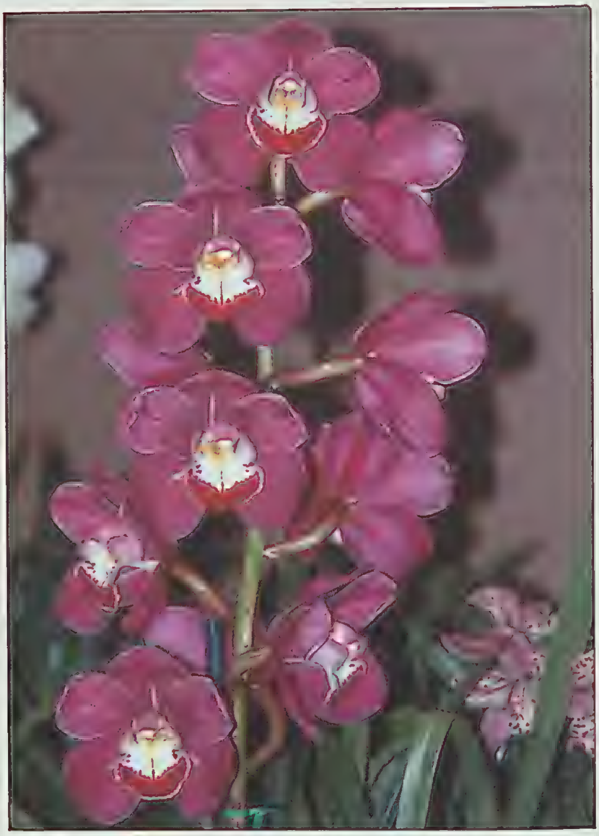
THE CYMBIDIUM ORCHID CLUB OF WESTERN AUSTRALIA INC.

Meetings are held on the 3rd Monday of each month (except January and February)
Benching of plants commences 7.15 p.m.
Popular Vote commences 7.50 p.m.
Main Meeting commences 8.00 p.m.
Venue: Belmont Sports & Recreation Club,
Abernethy Rd, Belmont, W.A.
For further details contact
Secretary, Marilyn Thomas,
17 Broula Road, Kalamunda, WA 6076
Phone: (08) 9293 0524
President, Nado Lenkic
Phone: (08) 9293 3196

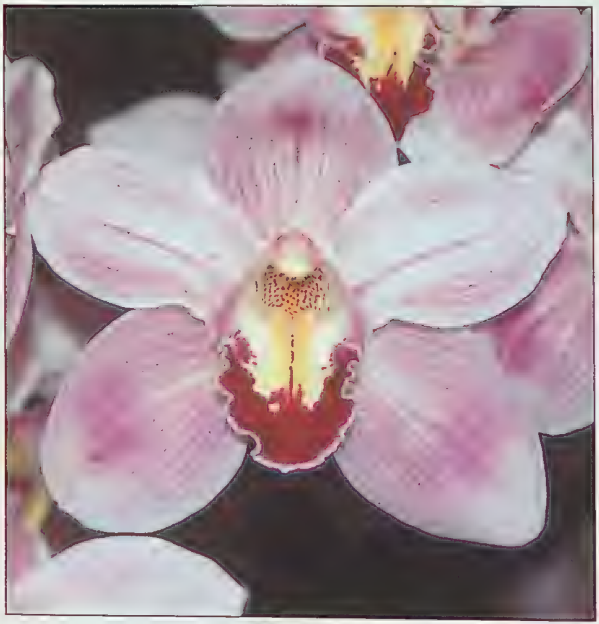
THE CYMBIDIUM ORCHID SOCIETY OF VICTORIA INC.

Meetings are held on 2nd Tuesday of each month (except January)
Popular Vote commences 7.50 p.m. —
Main Meeting commences 8.00 p.m.
Venue: Mt. Waverley Youth Centre,
Millers Crescent, Mt. Waverley, Victoria.
For further details contact
Secretary, Kevin Brown,
4 Riviera Street, Mt Waverley, Victoria 3149
Phone: (03) 9808 1224
President, Peter Sunderland,
Phone: (03) 5998 2535

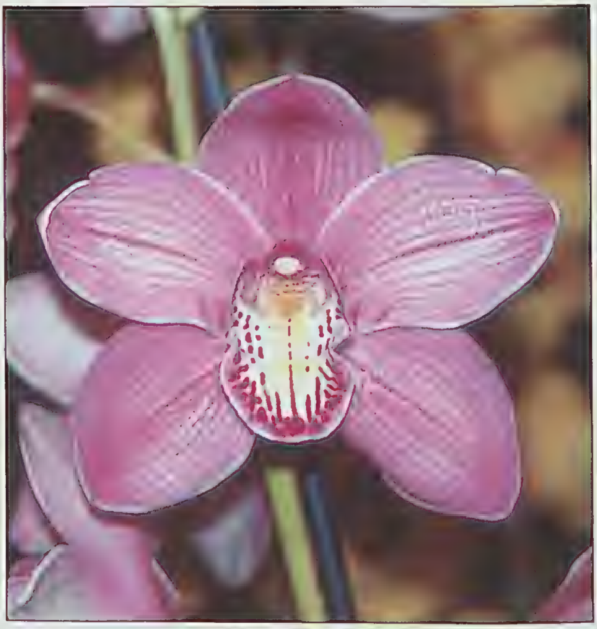
Probably the largest basket anyone has every seen. Exhibitors at National Cymbidium Shows pull out all the stops when it comes to displays.



Cym. Rotorua 'Rose'. This outstanding cut stem was grown and shown by the renowned show bench grower John Mata. The national show's John Mata Trophy is named in his honour and memory.



Cym. Valley Splash 'Painted Lady'. Victoria's Kimberley orchids showed this most striking clone of that famous Valley Orchids hybrid, just one of may outstanding clones of the cross that Kimberley Orchids grew from seedlings.



Cym. Kirby Lesh '105'. Grand Champion at the first National Cymbidium Show for Guest Orchids of South Australia. Over the years since 1996 various clones of this Andrew Easton hybrid have won numerous prizes and awards for their owners.

The 2005 National Cymbidium Show and its 10th Anniversary

Text and photography by Rob Smith

Time certainly does fly! It's hard to believe that the Australian Cymbidium Society was formed ten years ago, with the first National Cymbidium Show being staged at Ararat in September 1996, meaning that the upcoming 2005 show will be the tenth such event. Needless to say, all involved from the ACS and the Cymbidium Club of South Australia (the 2005 host state club) are looking to make the 10th Anniversary show something very special. A new venue has been found, both for the show and the show banquet, and details will be published in future Australian Orchid Review issues.

2005 will be a time for celebration, both for the ongoing development of quality cymbidiums for which Australia can be justly proud, and for the success of a dream that all *Cymbidium*-growing states could unite and sustain a show that was, and still is, the only national cymbidiums-only show in the world.

Along with the festivities of the 10th Anniversary celebration, and the enjoyment of the latest, best and most exciting cymbidiums, it will also be a time for reflection and reminiscences of the people met over the years – many who became firm friends, the plants and flowers seen – many shown for the first time at our national shows, the people honoured over that time – people who's contributions to the development of cymbidiums, *Cymbidium* clubs, and the promotion of both, that have formed part of the history of cymbidiums in this country.

To jog a few memories we've included a few pictures from the first National Cymbidium Show staged in the Ararat Town Hall.

See you in Adelaide in 2005! ■

Rob Smith
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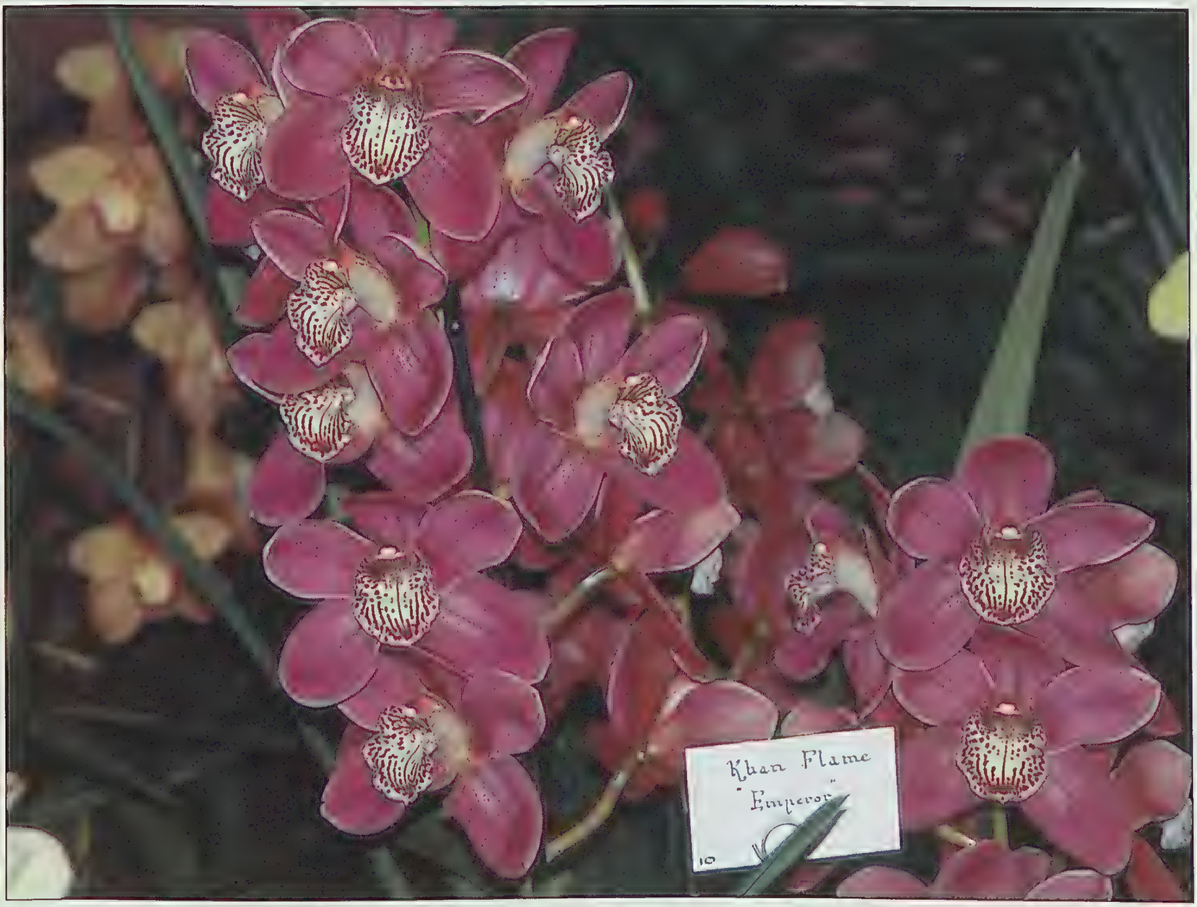
Rosebud, Victoria 3939



Cym. Khan Flame 'Emperor'. A fine example of this now famous Bryants Orchids hybrid made by combining *Cym.* Cronulla with *Cym.* Yowie Flame. Numerous clones of *Cym.* Khan Flame feature on the show bench and the grex has gone on to become one of the most notable breeding lines of the last decade.

Andy Tran's Champion Large Flower, *Cym.* Kimberley Valley 'Templestowe', an impressive large flowered green standard, well grown and presented, from a crossing which has produced numerous show and award quality cultivars.

The 2004 COSV Cymbidium Orchid Festival

Text and photography by Rob Smith

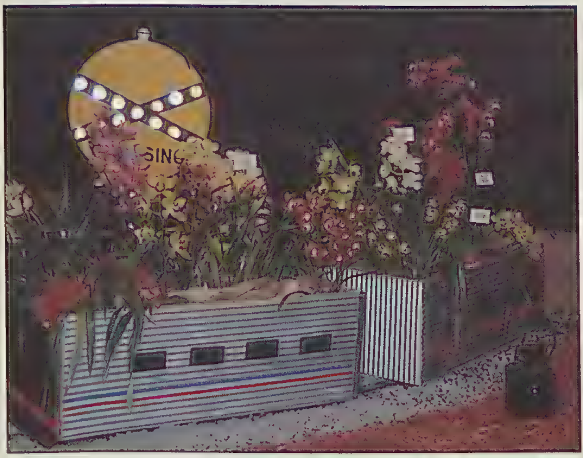
For the ninth year in succession a major *Cymbidium* orchid show has been held in the Ararat Arts Activity Centre (Town Hall). The partnership between the Cymbidium Orchid Society of Victoria and the Ararat City Council began originally to provide a venue for the inaugural National Cymbidium Show but so successful was the partnership that an agreement was reached to stage a major *Cymbidium* show in the city annually, thus establishing the COSV Cymbidium Orchid Festival event in Ararat during the years that the national show is hosted by either South Australia or New South Wales.

While the overall numbers of displays and exhibitors may be somewhat reduced in comparison to national show years hosted by Victoria, those who have taken part in or visited a COSV Cymbidium Orchid Festival agree that the event is always an outstanding showcase for cymbidiums and equal in quality to a national show.

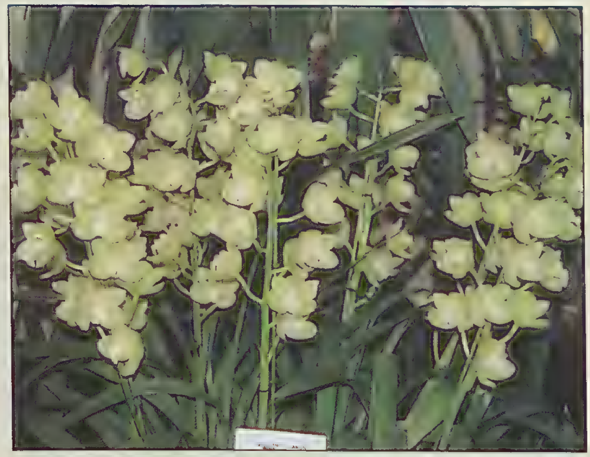
This year 20 displays staged by Victorian and South Australian growers filled the hall with a riot of colour. The theme and artistic type displays are always a major feature of this show and 2004 was no exception, with a variety of eye-catching themes adding to the overall impact of hundreds of flowering cymbidiums.

Another area which is emphasized at COSV Cymbidium Orchid Festivals is the showing of seedling cymbidiums and, this year, over 100 seedling cymbidiums were nominated for the judges' attention. Competition was fierce, with the judges being tested by the sheer number and quality of the seedlings exhibited – a testament to the enthusiasm for growing new cymbidiums, and the work being done by Australian hybridisers – as the vast majority of the nominations were for locally bred cymbidiums (although a few from overseas were in evidence, including one size class champion in *Cym.* Kirby Lesh 'Olympia', an Andrew Easton hybrid exhibited by Kimberley Orchids).

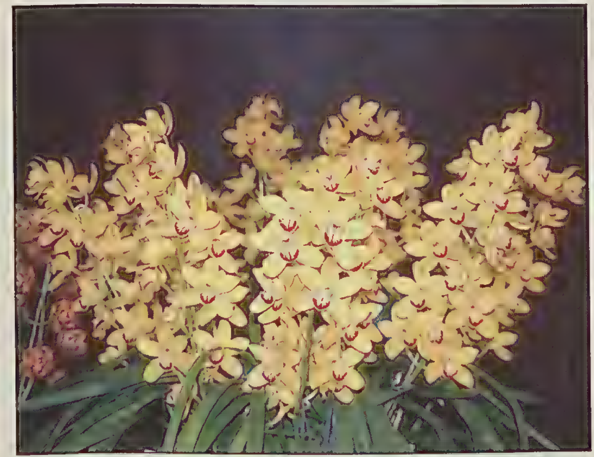
Other seedling champions were *Cym.* (Kelly's Winter x



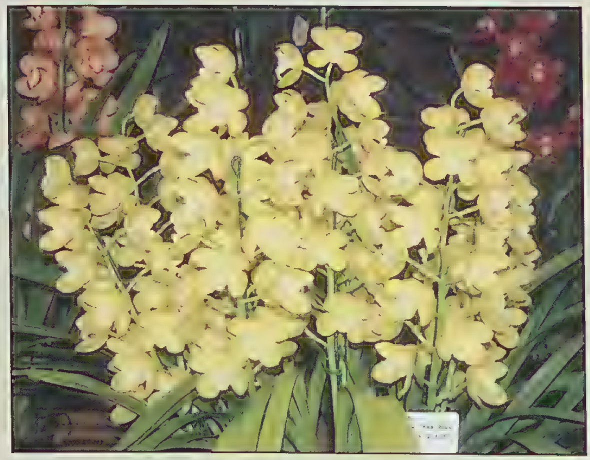
The inventive theme display staged by the Ararat Department of Parks & Gardens featuring a train representing the new rail service to Melbourne and a wind turbine, as wind-generated electricity is now a growing industry in the area.



Cym. Sleeping Sharon 'Cambridge Dream', the Champion Miniature and the Champion Miniature Specimen for Pam and Elmore Leske was an outstanding flowering of their awarded clone of this successful hybrid.



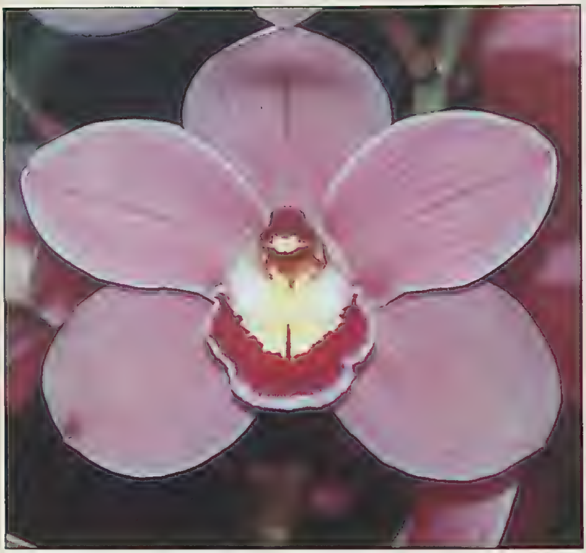
Champion Intermediate Specimen, *Cym.* Gigli 'Golden Flame', immaculately grown and displayed by Ted Symes.



Another immaculately presented specimen from successful Gippsland grower Phil Grech, *Cym.* One Tree Hill 'John's Quest'.

Jan and Andy Leamon always create tasteful and eye-catching large theme displays and their 2004 entry was no exception, featuring a number of massive specimen cymbidiums.

Gold sash winning Medium Display Incorporating a Theme exhibited by Dean and Mary Roesler, who specialize in inventive and creative themes.



Cym. Lancashire Khan 'Debonair' , an impressive large flower type in pink with a nicely contrasting red-banded labellum.

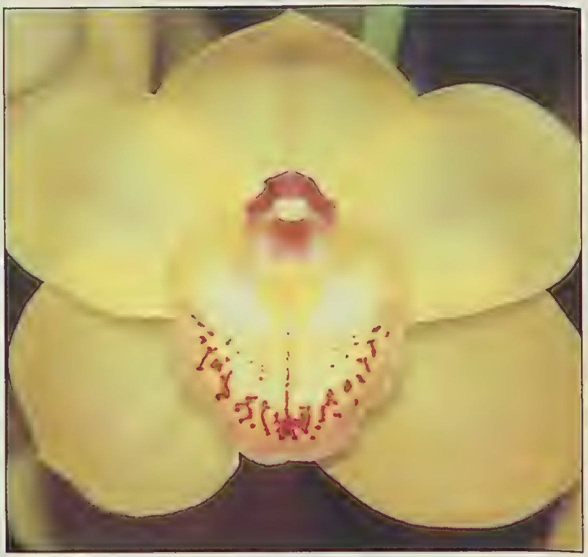
Tracey Reddaway) owned by Terry Poulton; *Cym.* (Pure Verd x Katydid) shown by Ken Purcell; and, *Cym.* (Jessie Blakiston x Lancashire Lady) exhibited by Imre Takacs.

A major change for the 2004 festival was the removal of the Grand Champion and Reserve Champion categories, allowing the other various champion classes to be the highest level of recognition in the show schedule.

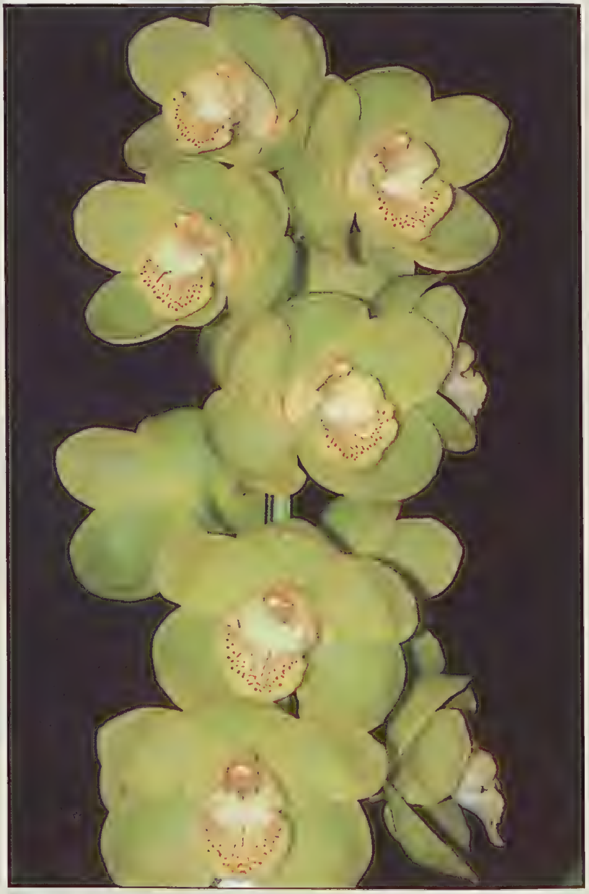
Champion Large Flower was won by Andy Tran with a beautifully flowered plant of *Cym.* Kimberley Valley 'Templestowe', which also won Champion Large Flower Specimen for its six outstanding spikes. Proving that his win in both these classes was no flash in the pan, Andy also benched the Champion Small Standard, a specimen sized *Cym.* Yowie Pepper 'Genghis'.

Champion Intermediate went to Phil Grech with another outstanding flowering of his *Cym.* One Tree Hill 'John's Quest', which also garnered him an AM/COSV award a couple of sea-

Gold sash winning Large Display Incorporating a Theme exhibited by Glenda Coutts and Ken West, who are regular winners in this category. This year's "Treasure Cave" theme was typical of the work they put into their displays.



Cym. (Lunara x Vivacious) 'King's Gold', the winner of the large flower yellow class for Kimberley Orchids. *Cym.* Lunara has proven to be a reliable breeder as this beautiful combination with the white Cym Vivacious shows.



Another outstanding green large flower type, *Cym.* Kimberley Winter 'Chartreuse' was shown by Phil Grech. This desirable flower is yet another from this most successful modern hybrid.

sons ago.

Champion Miniature and Champion Miniature Specimen was won by Pam and Elmore Leske's *Cym.* Sleeping Sharon 'Cambridge Dream', who also exhibited the Champion Cut Stem, *Cym.* Akebono 'Dural'.

Champion Small Standard Specimen was won by *Cym.* Sims Vision 'Barcelona' exhibited by Moss Bray, and Champion Intermediate Specimen was won by *Cym.* Gigli 'Golden Flame' exhibited by Tom Symes.

Phil Grech secured Champion Novelty with a well-grown example of *Cym.* Wallamurra 'Ninja', his mutation of the classic *Cym.* Wallamurra 'Jupiter'.

In the display section of the show schedule the judges had plenty of work to do, with some very hard decisions to be made.

In the Theme/Artistic categories the gold, silver and bronze sashes were awarded to the following exhibitors respectively:

Large Display: G Coutts & K West; A & J Leamon; Ararat Rural City.

Medium Display: D & M Roesler; P & J Grech; P and L Williams.

Small Display: K Purcell; R Pascoe; P Churchus.

In the other display categories the gold, silver and bronze sashes were awarded to the following exhibitors respectively:

Large Display: C & D Allen and R & N Smith; Kimberley Orchids; M Bray.

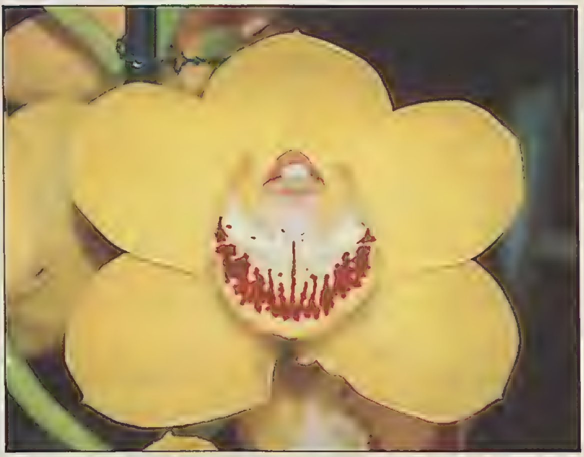
Champion Large Display went to David & Carolin Allen and Rob and Noe Smith for their display featuring clean lines and a good mix of *Cymbidium* types, sizes and colours.

Medium Display: P & E Leske; T Poulton; D Wain.

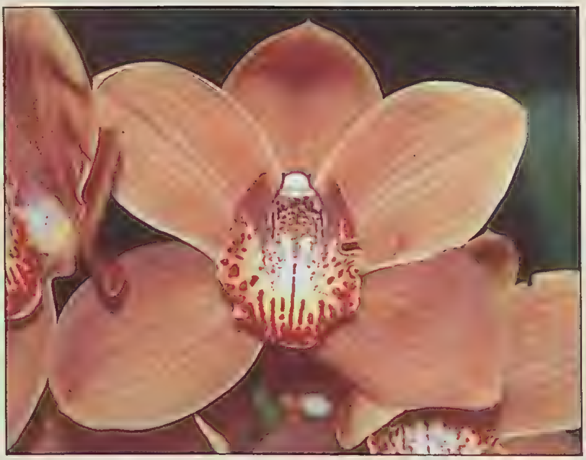
Small Display: K Brown and H & M Morren; I Takacs; J Hedger.

As I mentioned earlier, the number and standard of seedlings benched was outstanding and, along with those observations, I must also say that the range of quality and colour displayed across all exhibits, and the high standard of culture evident, only confirms what I've long believed about the positive effects generated by Australia's specialist *Cymbidium* clubs.

To look at some of the winners across the various divisions was to see some of the most advanced *Cymbidium* hybrids, not only in terms of flower form, but floriferousness relative to plant size and variety of colour. Today, a show such as this can feature outstanding reds across all sizes, particularly among the large flowered types, where full shaped flowers of good size on tall



Terry Poulton's *Cym.* (Kelly's Winter x Tracey Reddaway) 'No. 2' showed good potential as a seedling with good shape, fair counts and rich, full colour.



Cym. Kakadu Sunset 'Glowing Embers' exhibited by Kimberley orchids. An absolutely stunning colour which always catches my eye whenever this plant is shown. Seen in the flesh this flower almost glows.

Silver sash winner in the Medium Display category was Terry Poulton, who put together his usual packed display of quality show flowers and seedlings, both from his own breeding and that of other hybridists.

spikes, and with counts up around 20 flowers are now a reality. Orange-toned cymbidiums now merit a colour class of their own, with some outstanding examples shown in all sizes. In fact, in virtually every size and colour new quality cymbidiums abound.

From a genera which, in Australia, was possibly in danger of stagnation just a decade ago, clubs specifically devoted to cymbidiums in the states of Victoria, New South Wales, South Australia and Western Australia have returned cymbidiums to their position as the pre-eminent orchid genera in the country. In terms of *Cymbidium* hybridising, Australia is probably the most active and, perhaps, most innovative *Cymbidium* scene in the world today.

It's not difficult to understand why overseas enthusiasts are simply blown away when visiting during our show season. To see *Cymbidium* shows on the scale of the festival in Ararat a month after the national show, and with similar events taking place in the other states as well, is beyond what can be expected anywhere else in the world.

Despite the weather in Ararat being as cold as I can remember it from previous years, the 2004 event delivered everything I've come to expect from it. Stunningly beautiful displays, the chance to catch up with so many good people, and an enjoyable, relaxed atmosphere no doubt contributed to by the show being held in a typical Australian country town.

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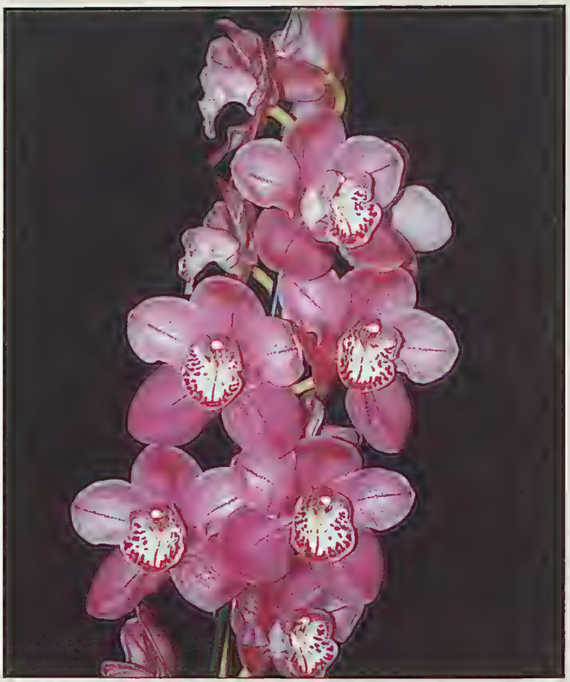
24 William Hunter Court
Rosebud, Victoria 3939



Champion Large Flower Seedling, *Cym.* Kirby Lesh 'Olympia', grown and shown by Kimberley Orchids. A full shaped striking pink exhibiting great potential.

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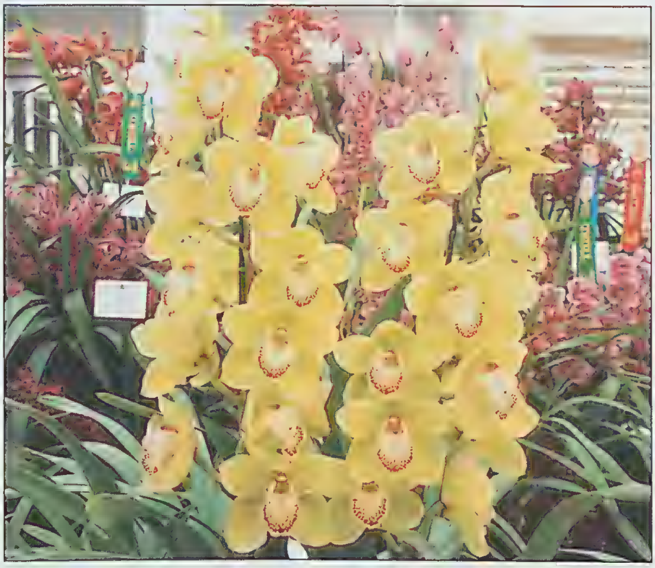
The COSV 2004 Spring Show at The Glen

Text and photography by Carolin Allen

The arrangement that that Cymbidium Orchid Society of Victoria has with The Glen Shopping Centre complex at Glen Waverley, a few kilometres east of the Melbourne CBD, is to provide an impressive display of massed spring-flowering cymbidiums for the public's enjoyment. Of course, from the club's point of view, it is important that the plants be judged as there is generous prize money on offer and much prestige for those who win trophies and sashes. Competition is always keen and 2004 saw 19 exhibitors bench 280 plants across two sections – Open growers, and a combined Intermediate/Novice grower category.

Set up day was fine and cool with all plants being unloaded and arranged under cover in the shopping centre's huge loading bay. While roofed, the area is open to the wind but, luckily, this year was calm. COSV Secretary, Kevin Brown, and Treasurer, Henk Morren, blocked out areas to indicate the various classes prior to judging and, a little after 3pm, the judging panels began their work.



Champion Cymbidium of the Show and Best Large Flower, *Cym.* Kimberley Valley 'Templestowe' owned by Andy Tran.

Unfortunately, one member missed the show completely and only realised it when he telephoned his list of plants for the show the Monday following set up and judging. Amid much merriment and good natured banter at the next social meeting he was presented with a large yearly planner on which to note orchid event dates, so it isn't only prize money and prestige that make orchid shows so enjoyable sometimes! The camaraderie is such a bonus for us all, isn't it.

Judging of The Glen show takes place during the last couple of hours the centre is open for trading and then, once the doors are shut and the centre is empty, members build the displays – one very large, long, rectangular area under a glassed in domed roof accommodates the plants of the Open Section exhibitors, and a smaller display for our Intermediate and Novice Section growers is set up on a curved balcony overlooking the centre's lower mall, giving a view of the flowers from both the upper and lower levels.

While an October show would be considered too late in the season to make a

A small part of the largest display under the glass domed roof.

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Best Intermediate in Show, *Cym.* Willunga Royal 'Orange Delight' owned by Dorothea & Brian Noble.

Best Seedling in Show, *Cym.* Kimberley Winter 'Cremello' owned by Kimberley orchids.

respectable display in other states it is quite ideal for Victoria, with plenty of late season show bench types overlapping and *Cym. devonianum* and it's hybrids, especially, providing a mix of flowers rarely seen at *Cymbidium* shows. The Glen show always seems to bring out more than its fair share of very large and well-grown specimen plants which are always a big hit with the public and, while recognition of the best cymbidiums and the best culture is integral to any competitive show, at a show such as this the eye appeal factor for the viewing audience is equally as important.

The Champion Cymbidium of the Show and Best Large Flower was a follow up win for Andy Tran, building on recent success at Ararat with his *Cym.* Kimberley Valley 'Templestowe'. Champion Cymbidium by an Intermediate/Novice Grower was won by Wendy & Alan Witnish with their *Cym.* Sarah Jean 'Jennifer'. Best Small Standard was won by Marj & Henk Morren with their plant of *Cym.* Kimberley Valley 'Paris'. Best Intermediate was won by Dorothea & Brian Noble with their plant of *Cym.* Willunga Royal 'Orange Delight'. Best Miniature was won by Jan & Andy Leamon with their plant of *Cym.* Jack Hudlow 'Waikanae'. Best Specimen was won by Terry Poulton with his plant of *Cym.* Valley Splash 'Awesome'. Best Seedling was won by Kimberley Orchids with their plant of *Cym.* Kimberley Winter 'Cremello'. ■

Carolin Allen
18 Wootten Crescent
Langwarrin, Victoria 3910

Best Specimen in Show, *Cym.* Valley Splash 'Awesome' owned by Terry Poulton.

A Pictorial of a Season's Seedlings

Text and photography by Rob Smith

Growing seedlings, whether bought from orchid nurseries or hybridisers, or grown from crossings we've made ourselves, brings a new dimension to the growing of orchids and, in our case, particularly cymbidiums.

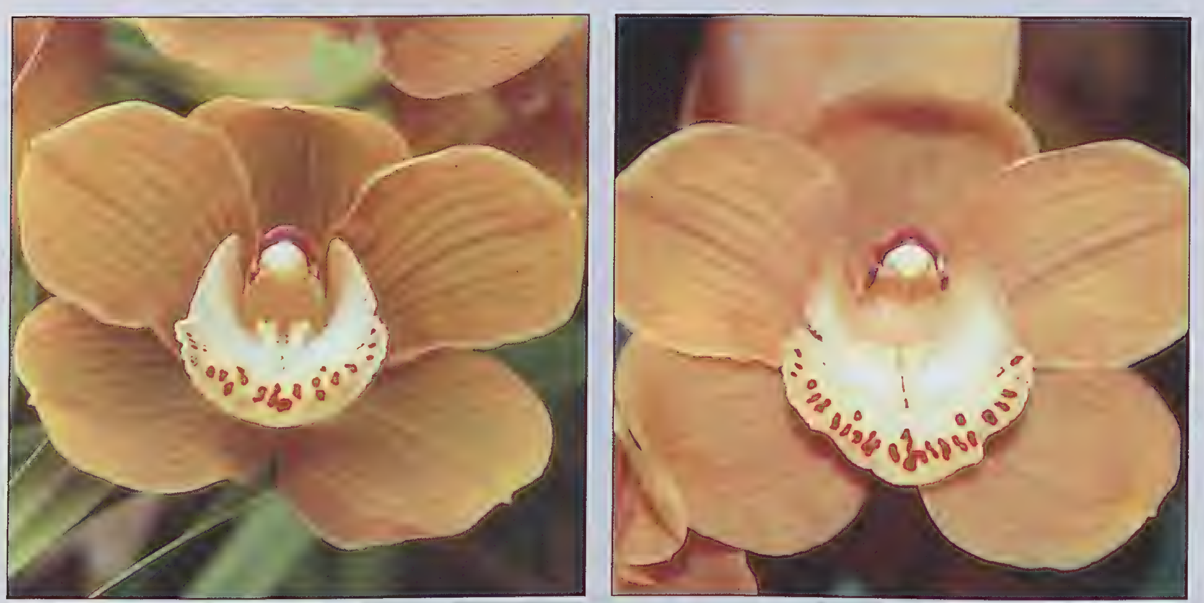
Growing seedlings is often referred to as a numbers game, in that the odds of getting a really good orchid are pretty long, which they certainly are and therefore the more you grow the more chance there is of striking it lucky. Of course the crossings you select to buy, or to make yourself, can have an effect on the odds too, as can the level of one's expectations. By that I mean that if you make or buy crossings which are, perhaps, speculative or experimental in their make up and intent then the odds could well be longer than for those crossings which are more a development on proven breeding lines. If, however, all you're looking for from any seedling is award winning quality, or that next grand champion, your successes may well be even fewer and further between, whereas if you are seeking a variety of outcomes, that is, beautiful flowers, floriferous pot plant types, potential specimens, or the future breeding parents and the odd show or award winner, then your successes could be much higher.

The cymbidiums featured here are a selection of those we flowered in the 2004 season, either from our own breeding or that of others. The majority were flowered on small plants, some only of two or three growths and, in real terms, only provide an indication of future potential. To illustrate the degree of improvement which can occur from a first flowering on a small plant to a second flowering on a more mature one we've included the first two pictures. The message being that if a first flowering shows some potential, whether in terms of colour, spike habit, labellum markings, or whatever, then flower it again. You may well be pleasantly surprised. Of course, those which have absolutely nothing to recommend them are better consigned to the garbage bin or compost heap. Improvements in flower count, flower size and flower form can be quite dramatic when comparing flowerings from immature plants to their subsequent mature efforts. Perhaps the only feature which will not show any improvement on a bigger, stronger plant is colour. While flower colour can be affected by light levels and temperature, an uninspiring, insipid, dirty-looking colour will probably always flower as such.

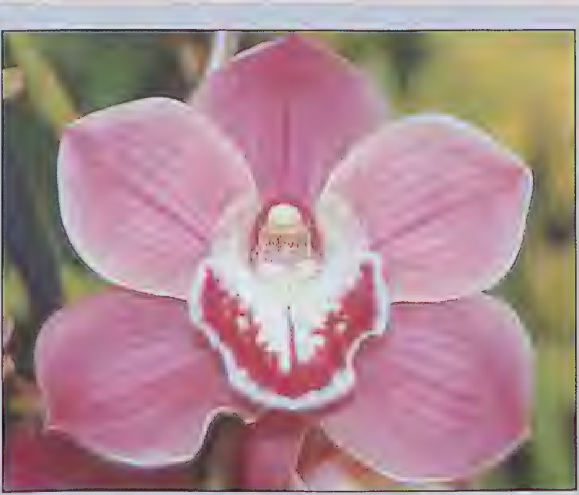
One aspect of assessing seedlings which must not be overlooked is that of culture, so give your seedlings the best possible chance to show their true potential by providing the best culture you possibly can. Just as someone may win a show with a well-known mericlone that bit bigger and better then the rest, providing the best possible culture gives any seedling the chance to show what its made of.

While we don't always succeed in sticking to our own advice, we generally try to insure that any first flowering seedling is repotted, given adequate space, light, water and fertiliser to show is potential on the next flowering. If having been given adequate culture it has failed to show improvement to an acceptable level, then it will find its way to the sales table if it is an attractive, free-flowering plant, to the bin if it isn't.

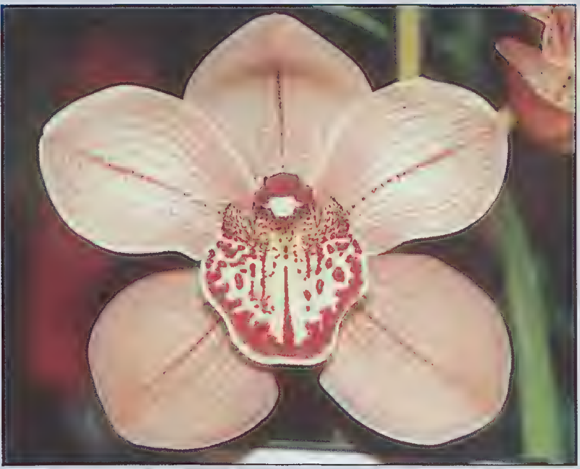
Whether any of the flowers pictured here will make the grade remains to be seen, but we hope you find them attractive or, at least, interesting.



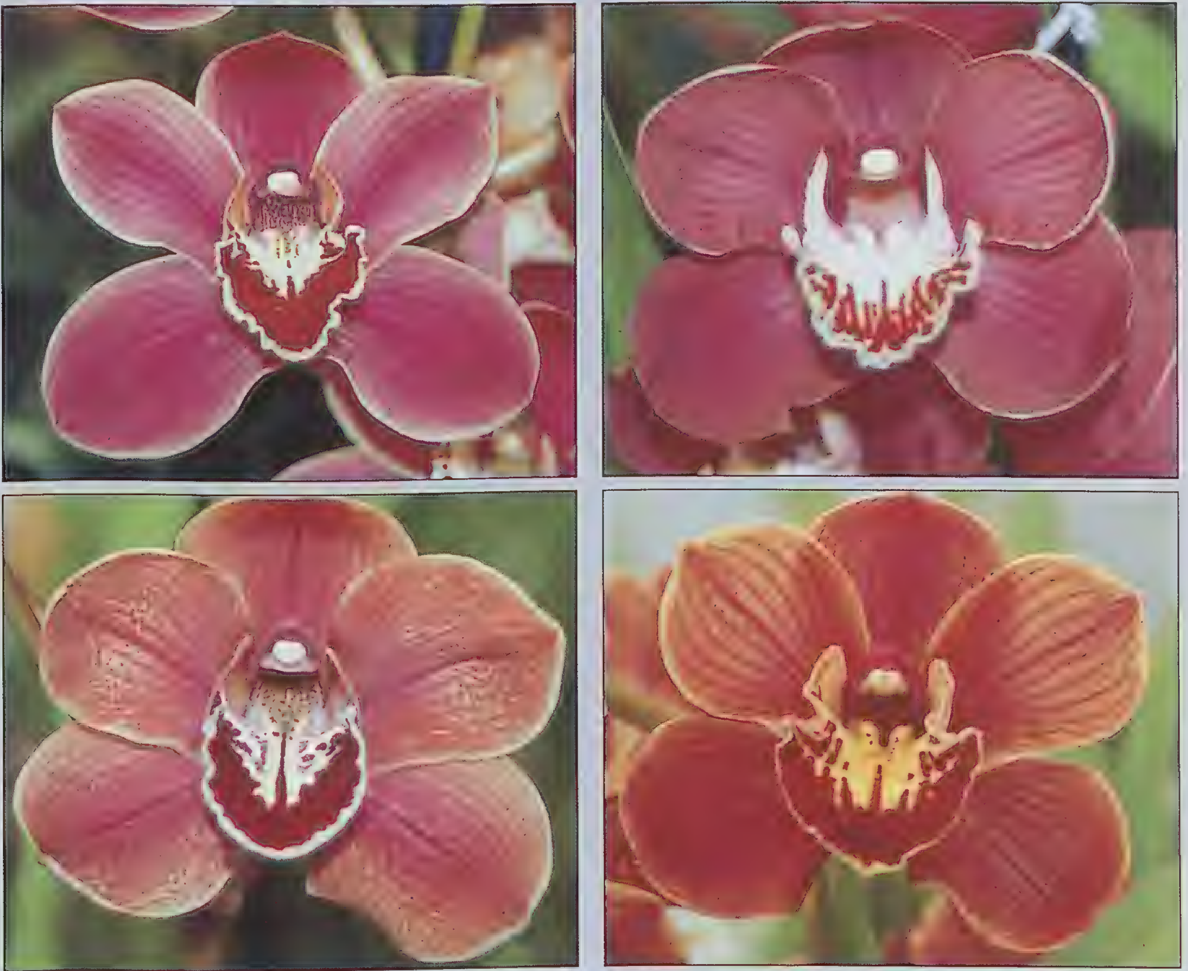
Cym. (Atlantic Crossing x Autumn Crisp). An Andrew Easton hybrid which we've now registered as Orange Crush. On its first flowering, with three spikes in a 5-inch pot, shape was less than inspiring but, with its unusual colour, high flower counts per spike and general floriferousness it certainly warranted another flowering. The result when flowered a second time in a 7-inch pot showed the significant improvement in flower form we'd hoped for.



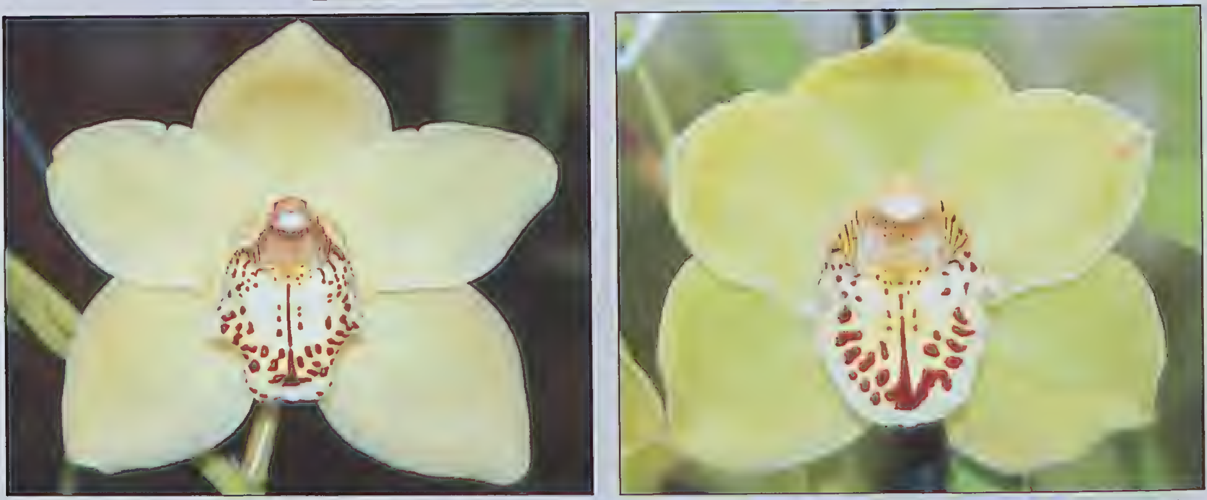
Cym. (Evelyn Victoria x Yowie Pepper) 'Candy'. From a Bryants Orchids cross, the flowers aren't large but are full and are produced in good numbers, the 6-inch pot producing two spikes of 16 and 12 flowers respectively. Spikes are tall and essentially upright in habit with good flower spacing. As a small standard we're hoping that 'Candy' may become a valuable breeder for shapely intermediates if it proves itself on future flowerings.



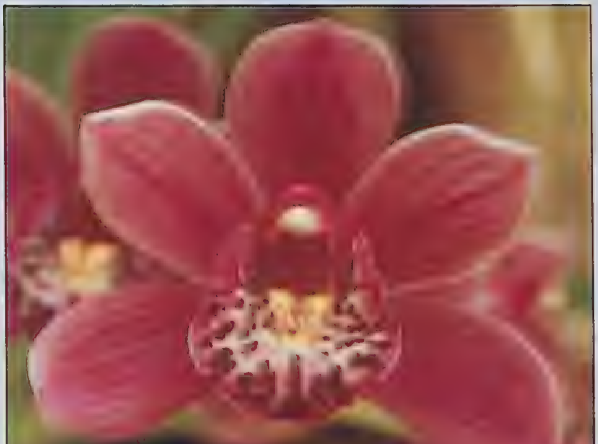
Cym. Bronze Idol 'No. 2' (Cronulla x Red Beauty). From a cross made by Rob Pollock, this is one of several large flowers carried on tall spikes produced from this cross so far. We chose the grex name as all flowered to date have been in the caramel, bronze or amber tones.



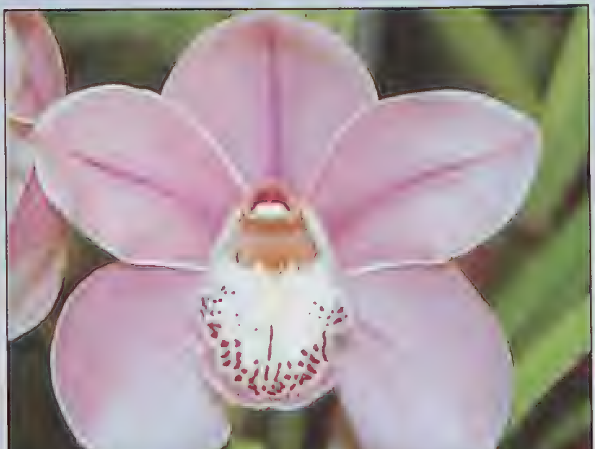
This group are the first we've flowered from the Bryants Orchids hybrid *Cym.* Flaming Pepper (Khan Flame x Yowie Pepper). These four examples, from seven flowered are typical of the results we've seen. Nearly all have been full-shaped in brown-reds and purple-reds and most have displayed tall spikes and more compact plant growth than the *Cym.* Yowie Pepper parent. Flower size has ranged from around 95-120mm. Unusually, a couple have shown quite distinct spotting over all segments although, inexplicably, I failed to photograph them!



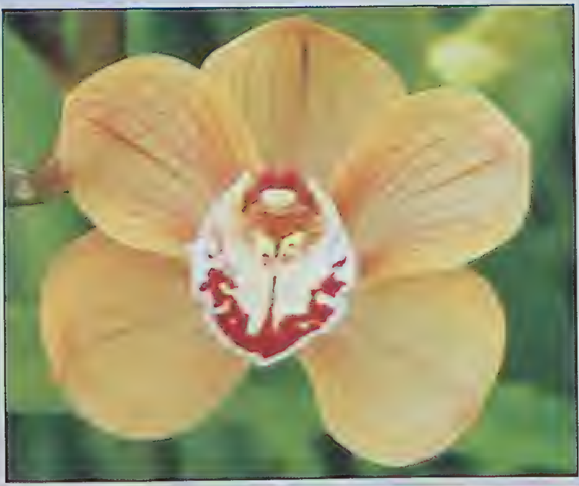
Cym. Green Lantern (Royale Fare 'No. 5' x Joker 'Royale Routine'). The first to flower in either 4-inch or 5-inch pots from one of our own hybrids has shown us enough to feel enthusiastic about its potential. All have been large flowers on good-length spikes with enough influence from the *Cym.* Joker and *Cym.* Rincon ancestry to improve the labellum markings of *Cym.* Royale Fare.

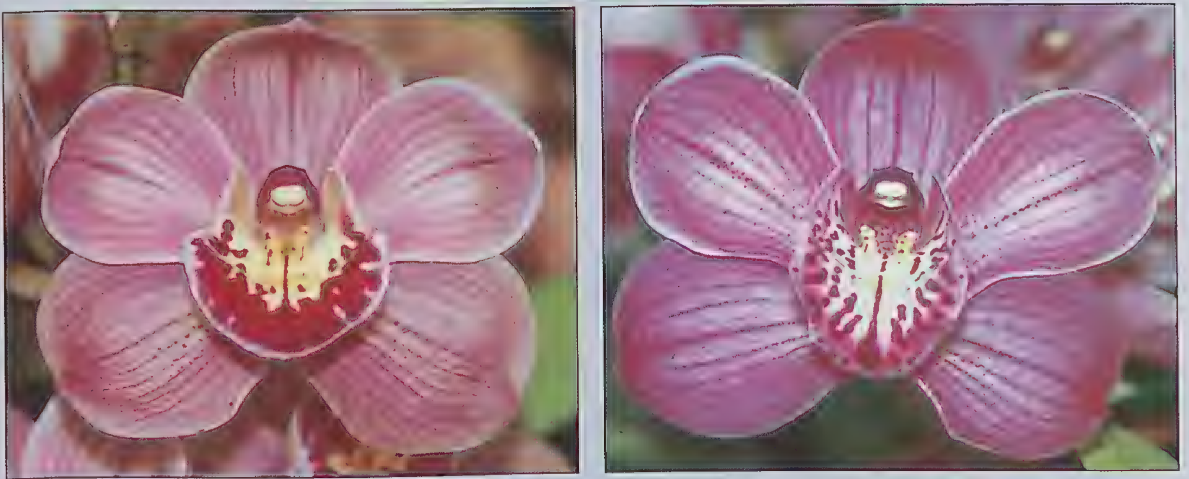


Cym. (Showgirl x Ruby Eyes). While not exhibiting much shape in show terms, this little flower is a true miniature with some potential as a parent if it will breed. Flowering for the first time in a 5-inch pot and with six bulbs it produced five spikes with around 15 blooms per spike. Bulb and leaf size is compact, although the plant performance, when moved into a larger pot, will probably confirm its potential.

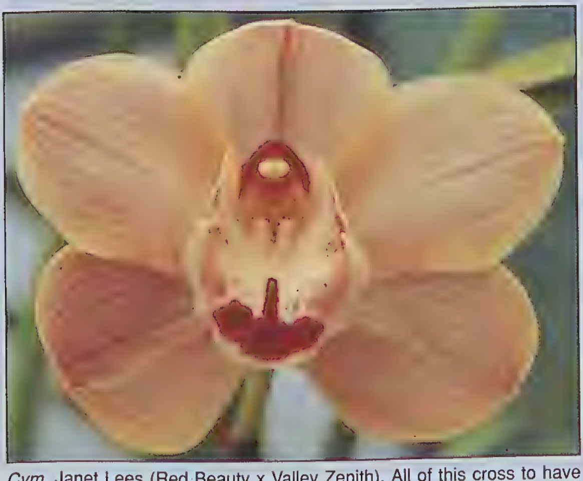


Cym. (Yowie Kingdom x Khan Flame). Another Bryants Orchids hybrid. This is the first of this cross to flower for us and it shows great potential. While it only produced a few flowers, their size is large, around five inches, despite the plant only being two bulbs and a lead in a 4-inch pot.

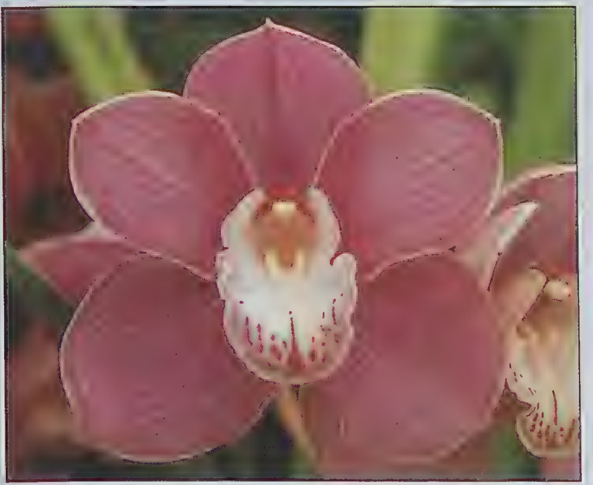




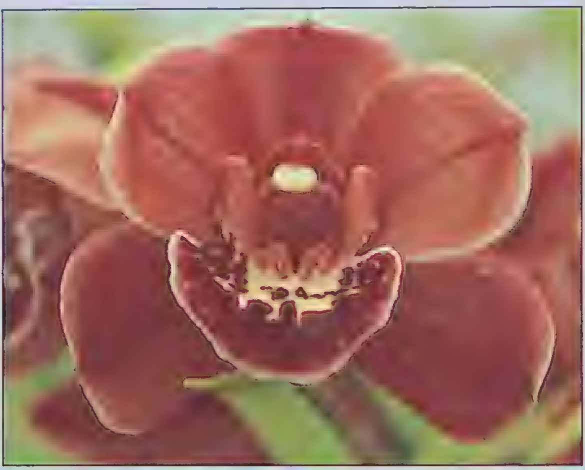
Cym. Cathleen Mitchell (Red Beauty x Talarico). Another of our hybrids which has produced some acceptable results. The first of the three shown here comes from *Cym.* Red Beauty 'Daphne' 4n as the pod parent, the other two are from *Cym.* Red Beauty 'Bronze Delight' 4n as the pod parent. *Cym.* Talarico is the result of the crossing of *Cym.* Wallamurra and *Cym.* Bill Smoothey. The majority of plants flowered from this hybrid have been vigorous, tall-spiked and floriferous.

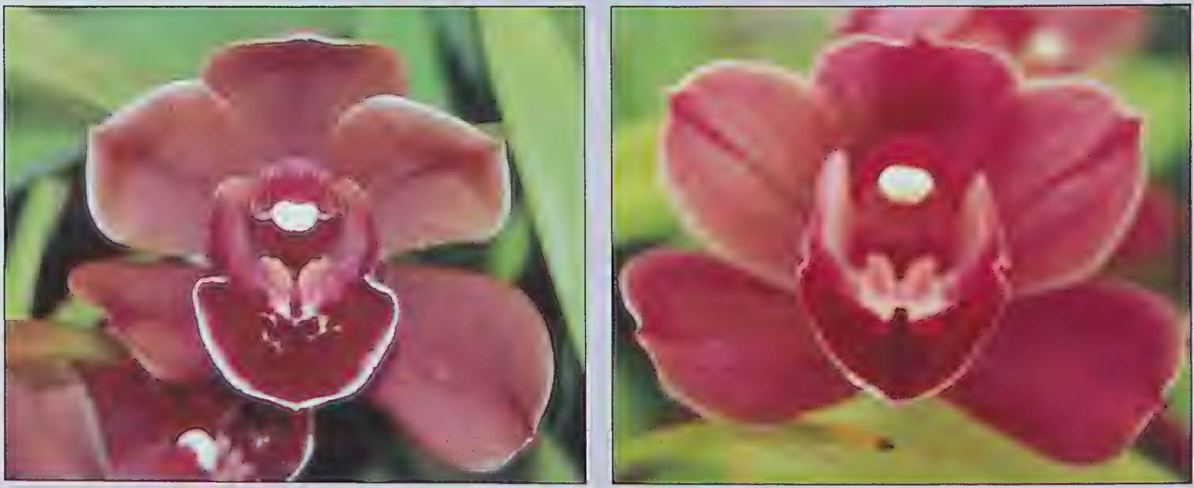


Cym. Janet Lees (Red Beauty x Valley Zenith). All of this cross to have flowered so far have shown good flower counts and tall spikes. Colours have all been in peach, orange and amber tones as *Cym.* Valley Zenith seems to let through the colour of the other parent used. In most cases, *Cym.* Valley Zenith has influenced flower form and labellum markings, with several showing 'Top Spot' type markings, although 'Tetrahigh' was the clone used.

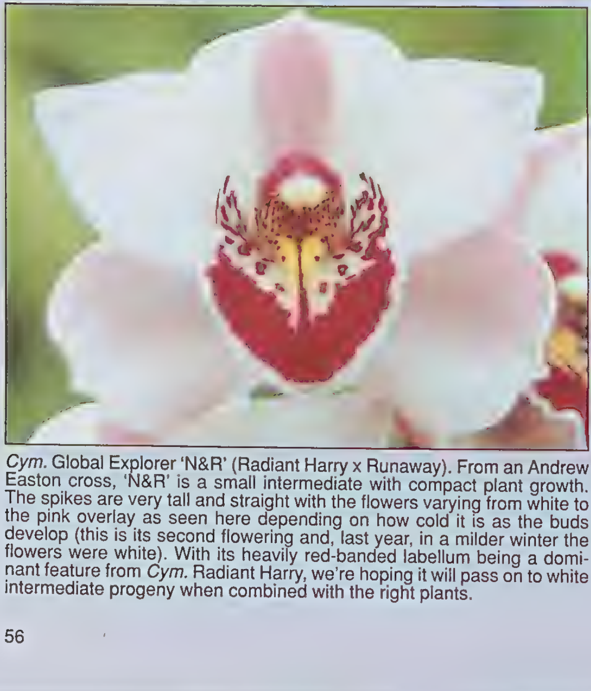


Cym. Hypno Beauty 'Haze' (Red Beauty x Khan Flame). A Bryants Orchids hybrid which has produced several awards already. 'Haze' is a very large flower and is carried in good numbers on tall, straight spikes. In all of the seedlings we've flowered the spikes have been strong and basically upright and carrying good counts into the twenties.

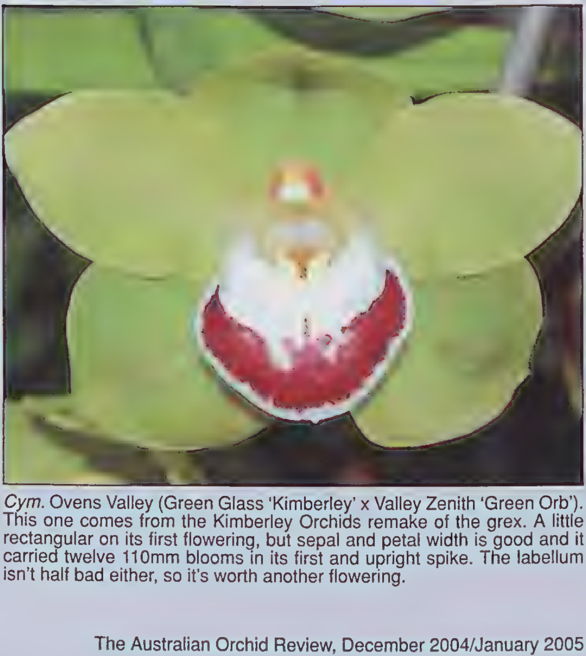




Cym. (Khan Flame x Last Tango). An intermediate hybrid from Bryants Orchids. We've flowered five of these this season and all have been very similar and worth flowering again. Flower size seems to be completely dominated by *Cym.* Last Tango. Combining these two parents might not be an obvious choice but first indications are that Greg Bryant may have made an inspired selection here. We've seen a few more of these in flower in other people's collections and there are some very nice flowers coming through.



Cym. Global Explorer 'N&R' (Radiant Harry x Runaway). From an Andrew Easton cross, 'N&R' is a small intermediate with compact plant growth. The spikes are very tall and straight with the flowers varying from white to the pink overlay as seen here depending on how cold it is as the buds develop (this is its second flowering and, last year, in a milder winter the flowers were white). With its heavily red-banded labellum being a dominant feature from *Cym.* Radiant Harry, we're hoping it will pass on to white intermediate progeny when combined with the right plants.



Cym. Ovens Valley (Green Glass 'Kimberley' x Valley Zenith 'Green Orb'). This one comes from the Kimberley Orchids remake of the grex. A little rectangular on its first flowering, but sepal and petal width is good and it carried twelve 110mm blooms in its first and upright spike. The labellum isn't half bad either, so it's worth another flowering.

In conclusion, you can see from the comments and observations accompanying the pictures that there are a number of reasons why we may keep a seedling, or at least give it another flowering if we think there is potential there but are hoping for improvement. In the case of plants which we think may have potential as future parents it's particularly necessary to see how they perform on a subsequent flowering before passing on their genes.

To some of you there might not be many, or any, of the flowers shown which would inspire you to keep them. To others, more might seem worthwhile than we will eventually give a home to. The idea was to provide a view of some of the seedlings from a season in what is, essentially, a hobby growers backyard collection. In total, triple this number flowered for the first time and didn't make the grade for our purposes first time out, although many went as gifts to friends who welcomed them for their beauty even though their flower form, spike habit, or whatever, didn't fit our requirements. Then, of course, there were some which went straight from the orchid house to the wheely bin. There are always some of those, but I must say that, in general, the complete dogs, resulting from many of these crosses are few in number when compared to what we used to find, even as little as ten years ago. Those which we didn't make tend to come from experienced and reputable hybridists who make well thought out crossings with quality parents and I suspect that has a lot to do with it. Plus, perhaps, we're getting better at picking crosses when the catalogues and lists arrive?

Yes, growing seedlings is a numbers game, but you can improve the odds if you select carefully and, anyway, it's a very enjoyable game. While it's been said many times, it's no less true that every desirable mericlone was once a seedling. Even if you don't include many seedlings in your collection, it's worthwhile growing a few.

Rob Smith
24 William Hunter Court
Rosebud, Victoria 3939

Upright or Pendulous?

Text by Carolin Allen

While judging at various clubs and shows over time, and especially during this year's season, I've noticed what seems to me to be a developing trend in staking pendulous and arching/decorative type spikes straight up. Through experience we know that certain plants have spikes which are supposed to hang over, yet so often these plants have their spikes trussed up like soldiers standing at attention and it does, I must say, makes me wonder why the owners would bother purchasing pendulous cymbidiums in the first place, given the effort required to make these types look acceptable in the upright position.

I understand that pendulous and arching/decorative types can be more difficult to pack and transport to have them in good condition when arriving at a show, but there are ways and means to overcome most problems. For example, extra ties and support stakes (and remembering to remove them prior to judging). Various methods of supporting pendulous types can be employed, such as using polystyrene boxes turned upside down with a hole cut in the bottom to fit the pot into with the spikes being spread out over the box, with the flowers wrapped loosely in tissue paper sleeves to protect them from any rubbing against any surface they touch.

To my mind, naturally pendulous or arching/decorative cymbidiums look much better if they are allowed to flower that way. The flowers themselves almost always align themselves properly and look much more attractive than on spikes that are trained and tied up against their will, often with the flowers having to be twisted and turned to prevent them following their natural tendencies. In many cases, the end result is much less pleasing and, often, the thin and naturally drooping spikes need so many ties to hold them up that the judges are immediately alerted to the fact that standing upright is not the natural spike habit.

Most judging guidelines and show rules allow judges to undo ties if they believe a spike may be incapable of supporting itself without them, and judges may also penalise a plant they believe has been over manipulated too, although such options are rarely taken. Perhaps the prevalence of this type of presentation has led to its acceptance?

It seems such a pity to spoil the natural beauty of these pendulous and arching/decorative cymbidiums, which also add a refreshing variety to our shows and displays. I can't help thinking that the eventual outcome from this growing trend might well be that the sections and classes for these types of plants will be removed from our show schedules if there are to be few or no plants nominated in them, so perhaps it might be a good idea to reconsider letting pendulous and arching/decorative cymbidiums display themselves as their natural habit dictates the next time you get out the stakes and the twisties.

Carolin Allen
18 Wootten Crescent
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AOR177

Cymbidium Hybridising

More Observations by an Amateur

Part 1

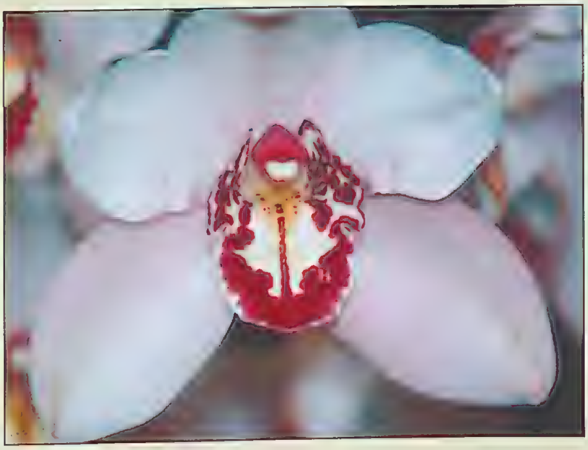
Text and photography by Grant Cole

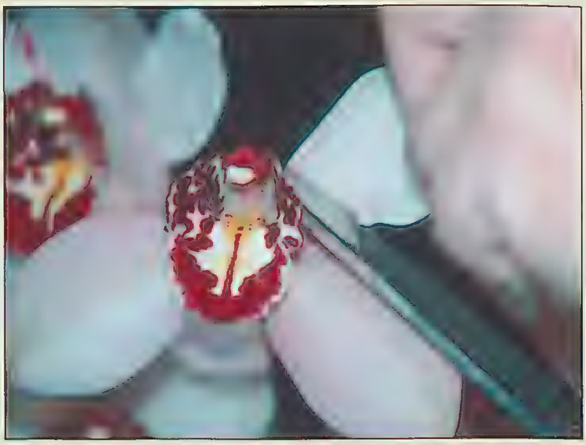
The purpose of this article is to pass on some of the information that I observed during my short twenty plus years making *Cymbidium* orchid hybrids as a hobbyist and amateur. It is not intended to be either a scientific treatise or a manual for professional growers. However, they may find something useful here. In the main, I will be addressing amateurs, including the very beginning amateur. I will endeavor to use the most common terms but however, I may not be totally successful. In the event I am not understood, further reading will be suggested in conclusion.

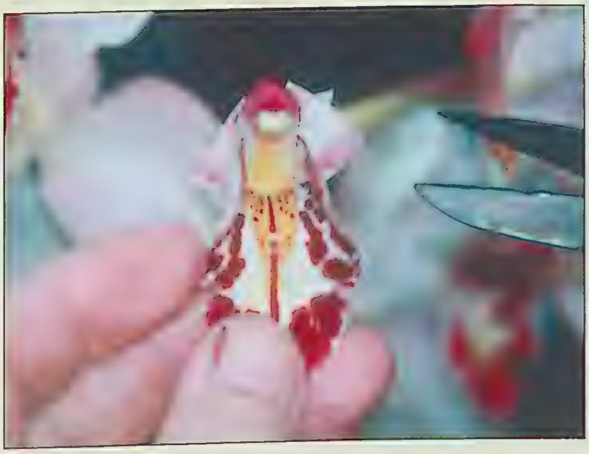
I began making hybrids because it was a challenge and, I could not find the kind of plants that I wanted to purchase. What I wanted were some of the dark flowered pendant cymbidiums that I saw in the orchid magazines. I could not find any for sale except at outrageous prices. I was fortunate and able to find a piece of *Cym. devonianum*, and *Cym.* Negrito 'Cherry Ripe'. They bloomed at about the same time and, I was able to pollinate *Cym.* Negrito with *Cym. devonianum*. Dr. Miles Seton, of Australia made this cross about the same time. He registered the cross as *Cym.* Bermagui, the name of the small coastal town where he lived in New South Wales. This cross was very successful in the United States, where it garnered numerous awards of quality for others and myself.

I sent three crosses to the laboratory for flasking the first year. Three crosses per year are about the most I think an amateur can take care of successfully. That could vary slightly with the number of final flasks one requests. Three to a maximum of six final flasks is more than enough unless you sell or share them.

Before any plant is considered for use in hybridising, it must be free of plant


1 Select flower to pollenate


2 Remove segments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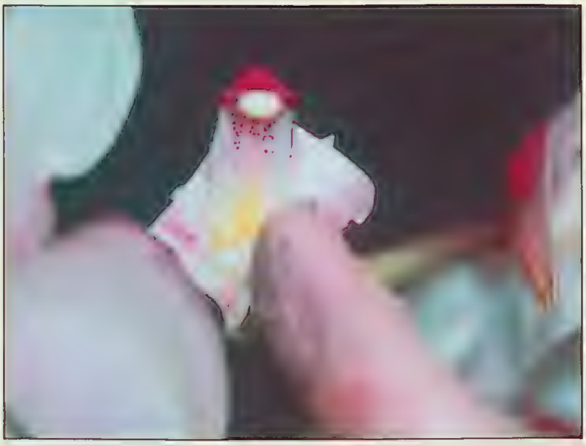

4 Remove the pollen cap

viruses. You may have a plant that is virus infected and, you like it. The leaves and the flowers may show little or no indications of virus infection. You say you like it and want to use it for hybridising. Well, if you keep it, it will slowly infect your entire collection. All of the seedlings produced from it will be infected. So destroy it!

All instruments that contact or cut plants must be kept sterilised so as not to spread virus infection. Of course, the most effective sterilising tool is the blowtorch. However, as an expedient, I often use Lysol brand aerosol spray disinfectant. The active ingredient in this is Dimethyl Benzyl Ammonium Saccharinate 0.1% in 79.0% ethyl alcohol. I find it very successful. Always allow it a few seconds to do a good job before using any tools disinfected with it. I also use it to sterilise cuts on plants and back-bulbs when I divide.

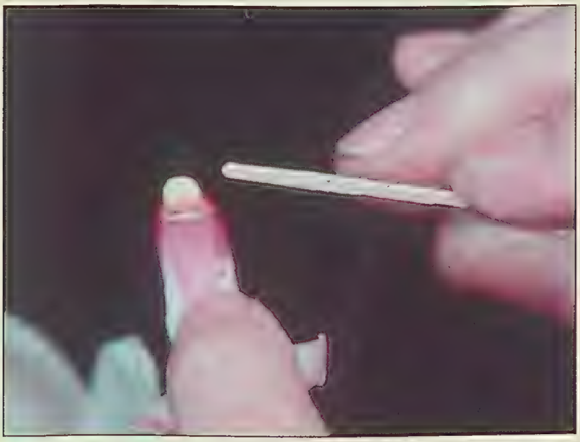
Remember even an amateur breeder will have to dispose of some of his excess seedlings. It is obviously better to sell them rather than trash them or give them away. Once the word gets out that your collection is infected, no one will want any of yours! You may have heard that you can use dry seed and outgrow the virus. You also may have heard that you can use meristem tissue culture cloning to outgrow the virus. Don't believe any of it. If it works at all, it takes years. I don't have the time to waste, and I don't think you do either!

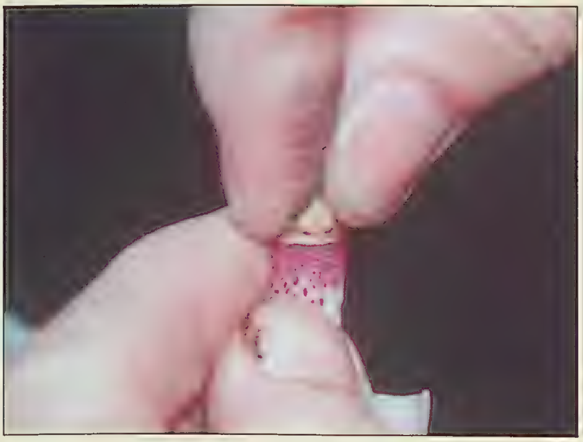
The second and foremost consideration is the objective. The objective of hybridising is to improve the genera. Therefore, what are we going to improve on; the color, the flower size, the flower shape, number of flowers, vigor, or the plant growth habit (upright spikes, pendant spikes, small leaves and plant size vs. larger spikes). If one doesn't have an objective for each cross-attempted, you will most likely produce so much trash. Fortunately most of it can be sold, but at much reduced prices. So, why waste the time?

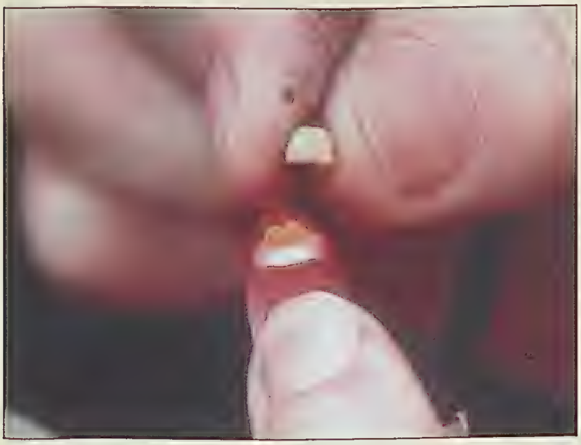
A rule of thumb of many professional orchid hybridisers is, "Only one out of twenty on average will be award winners, the rest will be dogs." Occasionally a successful cross will be made in which there are many near awardable plants. The converse is also true, and there are well thought out crosses that produce nothing exceptional.

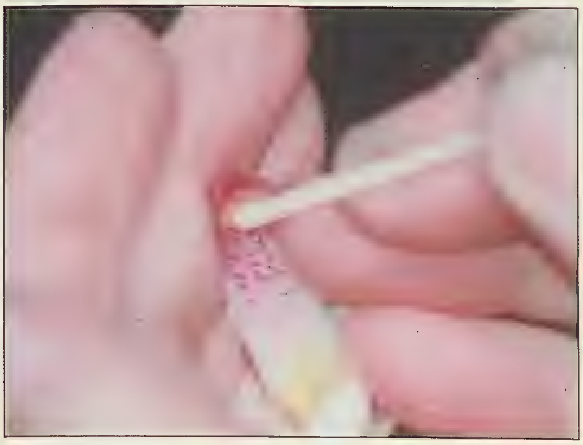
Plant size is somewhat easily controlled. Small plants usually produce small offspring especially, when crossed with other small plants. This is often desirable in novelties if the spikes are erect and emerge upward and out from the foliage. Commercial growers prefer upright spikes on plants to be shipped and marketed while in flower. Plants with pendant spikes are difficult to ship while in spike and take up a lot of room in the nursery. On the other hand, plants with pendant spikes are very popular and bring good prices especially when in bloom.

Tetraploid plants when crossed with diploids will be very dominant in the order of sixteen times as they have twice as many chromosomes as diploids. A small


5 Removing the pollen cap


6 Removing the pollen cap


7 Removing the pollen cap


8 Removing the pollen

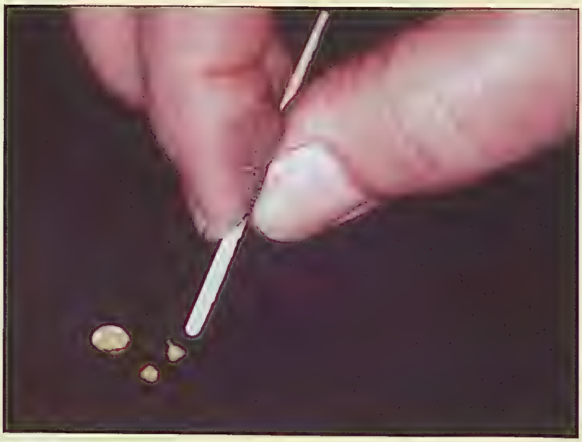
tetraploid crossed with a diploid will always produce small plants. A large tetraploid crossed with a small diploid will produce mostly large plants resembling the tetraploid parent. The species *Cym. madidum*, a diploid, has small flowers and very large pseudo bulbs. It is well known for producing very large hybrids with extra large pseudo bulbs when crossed with diploids but with small flowers. However, when *Cym. madidum* is crossed with small tetraploids the size of the plant is kept small, which is the case with *Cym.* Sunshine Falls (*madidum* 2n x King Arthur 4n).

Most of the miniature species, i.e. *Cym. pumilum*, *Cym. devonianum*, and *Cym. suave*, will produce mainly intermediate sized offspring when crossed with standard diploids. Many of these crosses with miniatures are quite charming due to vigorous growth and floriferousness and will be miniature to intermediate in flower size. The exception may be *Cym. suave*, which generally produces plants that are somewhat slow to mature and bloom. When well crossed, *Cym. suave* hybrids can produce spectacular multi-floral displays.

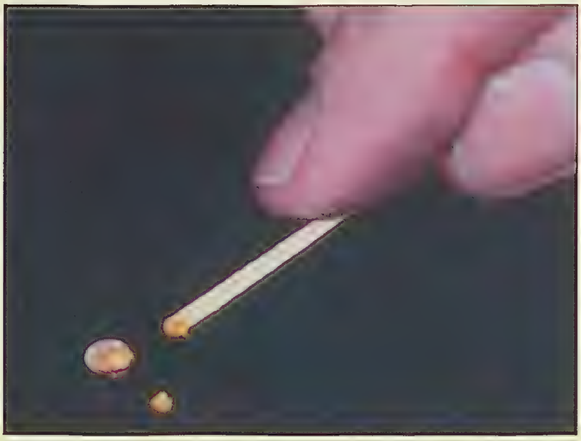
Cym. canaliculatum is miniature flowered and is an excellent pollen parent. The progeny however appear to mature slowly and are difficult to bloom. The difficulty in blooming may be due to the influence of *Cym. canaliculatum* as it prefers a dry flowering season. *Cym. canaliculatum* should be grown dry in the Northern Hemisphere from December until after blooming. During this period, limited water should be applied only to the mix and never on the flower spikes. Once flowering is over, you may drench it with little or no harm.

Cym. pumilum is an excellent parent either as pollen or pod parent. There are at least two forms of it, the brown flowered and the green-yellow album form. They are both good parents producing vigorous growing seedlings. The album form is not a true alba as it has some red in the lip marking. It is probably best used with light or pure colored parents. The brown flowered form will muddy the colors when crossed with a light colored parent. It does very well when crossed with high colored plants like reds. Most *Cym. pumilum* hybrids are infertile. It was many years before a fertile *Cym. pumilum* hybrid was discovered. Occasionally, a cross is made in which there are many fertile clones. *Cym.* Kabuki was such a cross. Every clone that I tested was fertile. A good fertility check is to self pollinate every clone on its' first blooming. If any are fertile they produce pods readily.

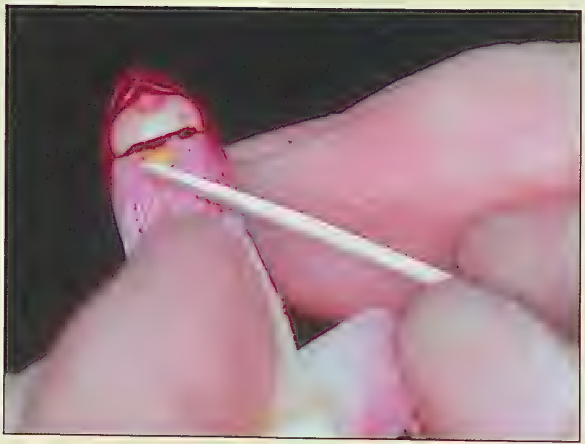
Cym. devonianum is my favorite breeder. It usually produces hybrids with a pendant or deeply arching spike habit, and flowers with a highly colored lip wider and more colorful than crosses of other miniature species. However, one clone of *Cym.* Bermagui had an upright spike and flowers almost the size of the *Cym.* Negrito parent. A drawback to using *Cym. devonianum* is the severe leaf-tip burn it has and gives to its' hybrids. This is caused by its'



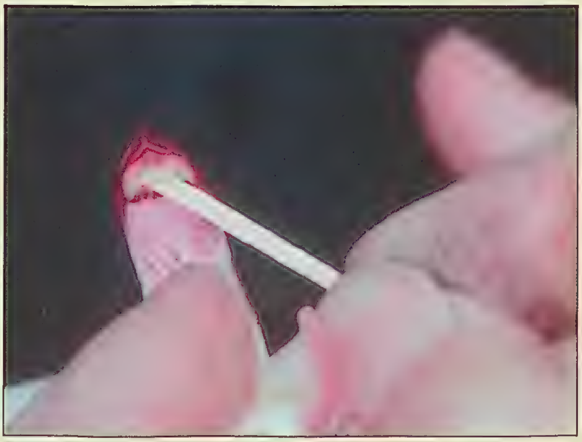
9 Divide the pollen into two pellets



10 Place one pellet on end of toothpick



11 Placing pollen into the stigmatic cavity



12 Placing pollen into stigmatic cavity

low tolerance for dissolved salt in the water. Some nice secondary hybrids have been made with *Cym. devonianum* crosses, but I would not use any parents with severe leaf-tip burn or spotting, as this characteristic is passed on.

Most tetraploid x diploid crosses are triploid and therefore sterile, will not breed further, and are referred to as "mules". At one time many triploids were created purposefully as they were considered more vigorous growers and better flower producers than their tetraploid parents. Many of these triploids were a boon to the cut-flower industry. Some triploids produced flowers of exceptional shape, color, and quality. The caveat was that they were a dead end as far as hybridizing. A fine example was the Stewarts cross of *Cym.* Lillian Stewart (Balkis x Carisona). Over five thousand seedlings were produced and received over two hundred awards for quality. There is no record of any plant in this extraordinary cross ever-producing seed.

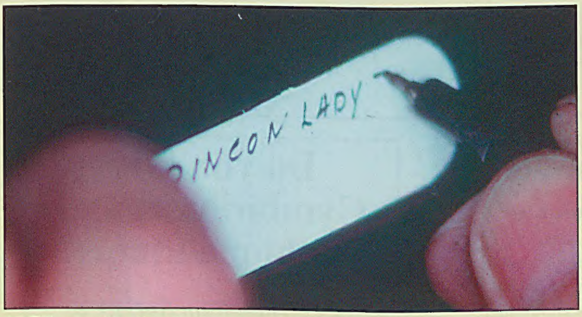
Occasionally a triploid may be found that is fertile, but only as a pod parent. One example of this is the Rod McLellan plant *Cym.* Hunter's Point 'Sunset'(Leonie x Mildred Hunter). This is a magnificent, vigorous growing, yellow with red lip flowered plant, which has been used as a pod parent many times. It is alleged to be a chance triploid out of a cross of diploids. It is very dominant and produces offspring with flowers much resembling those of the mother plant in color and size. Of course some of the resulting plants will be aneuploids, or genetic freaks.

My uneducated guess is that *Cym.* Hunter's Point is not a true triploid with thirty chromosomes, but possibly twenty-eight or thirty-two chromosomes. This may account for its ability to breed.

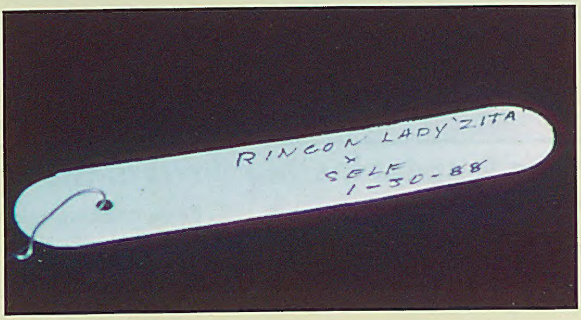
A random hexaploid clone occurred in a batch of meristems of *Cym.* Hunter's Point 'Sunset' at Sequoia Orchids in Northern California. The plant had large, well rounded, and full shaped flowers, however the flower count was very low. The plant was bred, and the seedlings were very slow growers and nothing of any consequence was produced.

Pollinating is best done when the pod parent flowers are fresh and fully open. It is alleged that in nature one can watch the bees go to the flowers which are most ready to pollinate. As the flower ages it is less virile and is less apt to achieve fertilisation. A few plants produce flowers that remain viable almost up to the time the flower turns color and drops off.

Freshly collected pollen is moist and will stick to paper. Care should be taken when working with dried pollen out of doors as it is easily blown away by your breath or a light gust of wind. If stored on a business card or paper, I weight it down with a large paper clip. A container with an edge is probably best suited for holding pollen. The filament or caudicle, which connects the pollen pellets, is very elastic, even after the pollen is well dried. Care should be taken to secure both pellets when separating them. This filament can snap like a rubber band propelling the

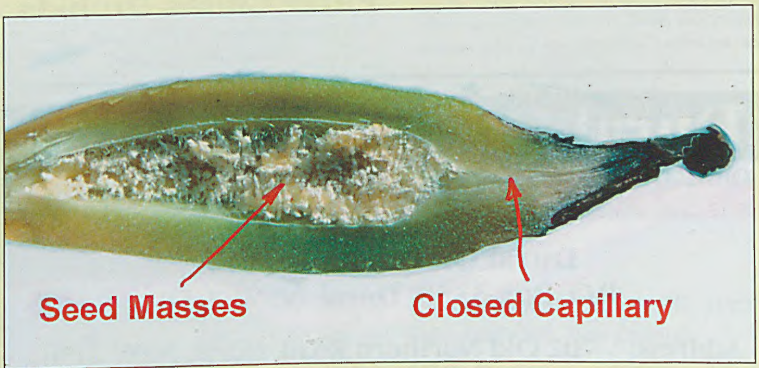


13 Filling out the label with names of parents and date



14 The complete label

15 The label attached to pollenated flower stem



16 Mature seed pod split to show seed masses and capillary

pollen out of sight. Separating pellets is probably best done with a sterilized razor blade, carefully held between the fingertips over the pollen.

I prefer to use flat toothpicks for pollinating. The small pointed end is used to lift the pollen cap and remove the pollen from the male flowers. I collect the pollen on the back of clean business cards and allow it to dry. I label the cards with the name of the plant and the date harvested. The pollen is sticky and adheres to the cards. It dries in an hour or so. If I plan to use it soon, I scrape it off of the cards and store it in paper envelopes. This works well only if I plan to use it within a few weeks. If I plan to use it much later or the next season, I place it in small glass tubes with rubber stoppers. I store these in the deep freeze set at -5∞F or colder. The tube is labeled with the name of the plant and date harvested. Never store or ship pollen in any form of plastic unless it is frozen. At normal temperatures and humidity pollen in plastic will mold.

In my experience pollen stored in paper loses fertility rapidly, often in a few weeks and is then useless. On the other hand, frozen pollen remains fertile for several years. Some times I have thought that the freezing increased potency, but I made no tests to confirm this. When frozen pollen is to be used, just remove only enough to use immediately, and place the remainder back in the freezer. Once frozen, the potency of pollen deteriorates rapidly when thawed, like in a few hours.

Before pollinating, I remove the pollen from the flowers that I intend to impregnate. As I pollinate a flower, I remove its' labellum. This tells me this flower was purposely impregnated. If I see another flower column swelling up, I know that it was not intentionally impregnated, and I remove the flower. I also place a label on that spike with names of the parents and the date crossed. If more than one cross is made on a spike, I indicate which flowers were used for a particular cross with separate labels. This information should be recorded in a logbook. Some growers use code numbers on their tags so as not to reveal their breeding plans to visitors. It is a practice by some breeders to remove the remaining flower petals after pollinating. This procedure is supposedly done to prevent dying petals from being a source of fungus infection to the seed capsule. I wait until the petals are dead and remove them carefully so not to damage the pod.

I use the flat end of toothpicks for pollinating. The pollen pellets adhere to the flat end better, especially if I dip it in saliva, from the back of my hand, first. When the pollen is inserted into the stigmatic cavity, it adheres to the stickier mass there and slides off of the toothpick. I use my thumb and first two fingers to gently press the pollen into the stigmatic cavity to aid it in sticking there. On some occasions when pollinating small flowers with pollen from larger flowers, the pollen may be too large and will be expelled from the cavity of the smaller flower. To prevent this I may split the pollen pellet with a sterilized razor blade into halves or even quarters. I also split pollen when my supply of a particular variety is low. I find the small pieces are just as effective in pollinating as the large ones. I do the reverse with some small flower pollen when I have an ample supply. By that I mean that I do not separate the pollen pair unless my supply is low. Sometimes if I have an ample supply of small pollen I place several pellets, or several pairs of pellets, in one cavity. Whenever I complete removing pollen from a plant or pollinating one, I discard the toothpick so as not to spread any possible infection. ■

To be continued in next issue.

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Australian Orchid Review

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Published and printed by
GRAPHIC WORLD
A.B.N. 27 003 714 967
14 McGill Street, Lewisham, NSW 2049 Australia.
Phone: (02) 9560 6166 Fax: (02) 9560 6677

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